

Public Utilities

FORTNIGHTLY

Volume 64 No. 5



August 27, 1959



POWER EQUIPMENT RESEARCH AND DEVELOPMENT—A KEY TO POWER COST CONTAINMENT

By J. L. Singleton

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Streetcars Find New Life Abroad

By Herbert Bratter

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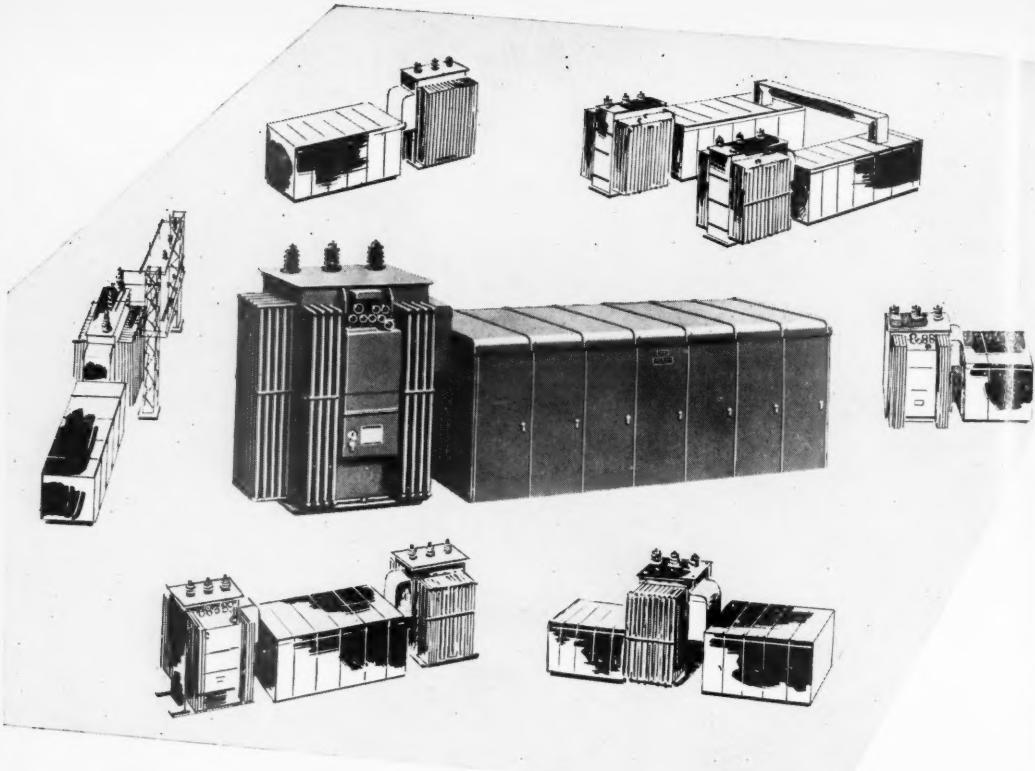
Acquisition Adjustments in Rate Cases

By Samuel M. Koenigsberg

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British Nationalized Utilities Run in the Red

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Public Utilities

FORTNIGHTLY

VOLUME 64

AUGUST 27, 1959

NUMBER 5



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Streetcars Find New Life Abroad *Herbert Bratter* 336

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What's the latest in

C-E BOILERS* FOR HIGHEST STEAM PRESSURES

COMPANY	STATION	No. of Units	Throttle Pressure	Steam Temperature	Capacity-kw Total
FOR SUPERCRITICAL PRESSURES					
Philadelphia Electric Co.	Eddystone	1	5000	1200/1050/1050	325,000
Philadelphia Electric Co.	Eddystone	1	3500	1050/1050/1050	325,000
Cleveland Electric Illuminating Co.	Avon	1	3500	1100/1050	215,000
FOR SUBCRITICAL PRESSURES — ABOVE 2400-LB					
Metropolitan Edison Co.	Portland	1	2520	1050/1050	165,000
Metropolitan Edison Co.	Portland	1	2520	1050/1000	225,000
New England Power Co.	Brayton	1	2520	1000/1000	250,000
Virginia Electric & Power Co.	Chesterfield	1	2520	1000/1000	167,000
Virginia Electric & Power Co.	Possom Point	1	2520	1000/1000	225,000
Dayton Power & Light Co.	Tait	2	2490	1050/1000	260,000
FOR SUBCRITICAL PRESSURE — 2400-LB					
Central Hudson Gas & Electric Co.	Danskammer	1	2400	1050/1000	125,000
Cincinnati Gas & Electric Co.	Beckjord	1	2400	1050/1000	156,250
Cincinnati Gas & Electric Co.	Miami Fort	1	2400	1050/1000	156,250
Cleveland Electric Illuminating Co.	Ashtabula	1	2400	1050/1050	225,000
Cleveland Electric Illuminating Co.	Eastlake	1	2400	1050/1050	187,500
Consumers Power Co.	Karn	1	2400	1050/1050	250,000
Consumers Power Co.	Port Sheldon	1	2400	1050/1000	250,000
Detroit Edison Co.	St. Clair	1	2400	1050/1000	325,000
Duke Power Co.	Allen	2	2400	1050/1000	330,000
Duke Power Co.	Allen	3	2400	1050/1000	825,000
Duke Power Co.	Lee	1	2400	1050/1000	165,000
Niagara Mohawk Power Co.	Dunkirk	2	2400	1050/1000	400,000
Niagara Mohawk Power Co.	Huntley	2	2400	1050/1000	400,000
Pennsylvania Electric Co.	Shawville	2	2400	1050/1000	330,000
Pennsylvania Power & Light Co.	Brunner Island	1	2400	1000/1000	300,000
Philadelphia Electric Co.	Schuylkill	1	2400	1050/1000	175,000
Potomac Electric Co.	Dickerson	2	2400	1050/1000	350,000
South Carolina Electric & Gas Co.	McMeekin	3	2400	1050/1000	375,000
Tennessee Valley Authority	Widows Creek	1	2400	1050/1000	500,000

The above list covers American utilities only. Abroad, too, the C-E Controlled Circulation Boiler has achieved a predominant position for 2400-lb applications, evidenced by orders placed with C-E or its licensees for 23 units with an aggregate capacity of 5,030,750 kw.

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200 M

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS;

in Steam Pressures?

Although one unit for supercritical pressure is presently in service and others are under construction, today's pressure plateau is in the 2400-2520 psi range.

It appears inevitable that many new units will be purchased for this pressure cycle, since it offers a heat rate gain of about 185 Btu over the 1800-psi pressure group. With ever-increasing fuel prices, there is ample incentive to move into this pressure range.

In the entire area of high pressures, temperatures and capacities, Combustion is playing a leading role. As indicated by the list on the opposite page, 38 C-E units have been purchased for use in the 2400-lb pressure range and above - 32 of the Controlled Circulation design. The turbine-generator capacity for the 38 units listed totals about 8-million kilowatts. Already, 14 of these units are in service supplying steam to produce more than 2-million kw. One has been in service over 3 years.

Later this year, a C-E Sulzer Monotube unit, designed for the highest steam pressure and temperature ever employed (5000 psi at 1200 F), will go into service at Eddystone Station of Philadelphia Electric Company. Two more supercritical pressure units, for 3500 psi, are presently under construction. Other similar units for subcritical pressures are already in service for Metropolitan Edison Company and Dayton Power & Light Co.

Along with higher pressure, the trend is toward higher unit capacities. In another year, the average size of high pressure units purchased should be up to 250 megawatts as compared to an average of 200 mw, for the units listed on the opposite page.

N ENGINEERING

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C-218

Pages with the Editors

THE nineteenth century British historian, H. T. Buckle, many years ago proclaimed what appeared to the world of his day as a rather novel position. He thought that timing is what makes historical events, and not vice versa. Given proper timing you could reverse history. The Spanish Armada was defeated more by a howling North Atlantic gale than by Sir Francis Drake and the other seagoing British naval heroes of the Elizabethan court. Napoleon was beaten at Waterloo by a rainstorm.

ONE could go on and on with such fantasy, about the timing of events in history. If Cleopatra had been born (or had died) a decade sooner, what would history say today of the Roman conquest of the Mediterranean? If Columbus had sailed only a month earlier, so that the prevailing winds landed him on the coast of Florida instead of the West Indies, would we all now be speaking Spanish in the United States?

WELL, whatever you may think of this, there is no doubt that good timing, as distinguished from poor timing, can make the world of difference in business. Think of what Baron Carl Auer von Welsbach did for the American gas industry in 1890 with the perfection of the Welsbach mantle (originally patented in 1885). This happened over a decade after Edison had invented the electric light, and eight years after the first commercial electric power station had been opened by Edison in Pearl street, New York city, in 1882.

WITH what we know of the superiority of electric lighting even over the ingenious gas mantle invented by Baron Welsbach, one might reasonably have jumped to the conclusion that the Baron's invention had appeared at least a decade too late. But the American gas companies

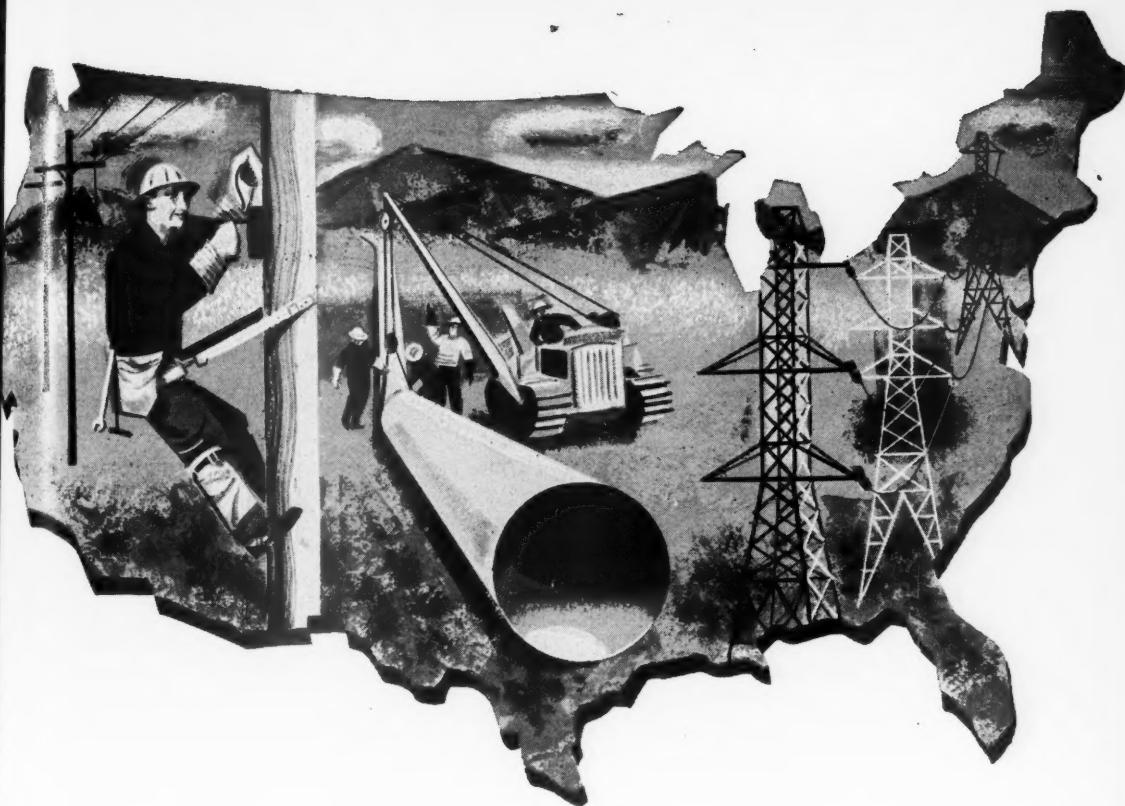


J. L. SINGLETON

of that era knew that they had the advantage of a time lag in the consumer market. American homes had already been piped for gas for many years. Electricity still had to be introduced and wired into the homes before electricity could take over the lighting business.

AND so it was that the ingenious incandescent mantle invented by the Austrian chemical genius, with rare earths, which he had discovered, gave gas lighting twenty to twenty-five years of extra life in some places. Thus the gas companies were able to retire gracefully and profitably from the lighting field and develop the cooking and heating markets which they occupy today. So much for history of a utility industry's conflict over the lighting market before the turn of the century.

IMAGINE our surprise to note an announcement earlier this year of a 1959 Welsbach gas mantle. The old glowing owl-like light which middle-aged people can recall in their childhood days is making a minor comeback. The new improvement steps up the candlepower and quantity of the mantle light with aluminum oxide. It is being promoted as part of an



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PAGES WITH THE EDITORS (*Continued*)

other recently popular American institution, the "cook out" with bottled gas.

TIMING has a special significance for the utility manufacturing industry especially those dealing in heavy units which take months and months to proceed from the drawing board to the final completion of installation. Heavy electrical equipment is certainly not a short cycle production. On the contrary, cycle buying in this area can be a negative factor, complicating the task of holding the line on power production costs.

THE opening article in this issue comes to us from the group vice president of Allis-Chalmers Manufacturing Company, J. L. SINGLETON, who has a message of interest not only for the operating electric utility companies but also for regulatory commissioners and staff who must keep abreast of the demands of managerial efficiency. Mr. SINGLETON points to the disruption of production in the manufacture of large items of power equipment which results from ordering them in cycles. He also discusses present-day research and development which enable the manufacturing as well as the operating branches of the electric industry to fulfill their public service obligations.

MR. SINGLETON is a native of Chattanooga, Tennessee, and a graduate in mechanical engineering from the Alabama Polytechnic Institute (BS, '26). He joined Allis-Chalmers in 1926 and has risen successively to his present post of vice pres-



SAMUEL M. KOENIGSBERG

ident, to which he was appointed in 1951.

* * * *

HAVE you ever wondered what happens to old streetcars? It is a more important question quantitatively today than twenty years ago. That is because of the wholesale discontinuance of streetcar service in even the largest American cities due to replacement by more flexible bus operations. In this issue (beginning on page 336) we have an interesting article from a Washington, D. C., author of business articles, HERBERT BRATTER, who has tried to run down the answer to this question. A good many superannuated American streetcars are finding their way into foreign countries for various uses. So, eventually these old-timers are going to a lot of places around the world beside the junk pile.

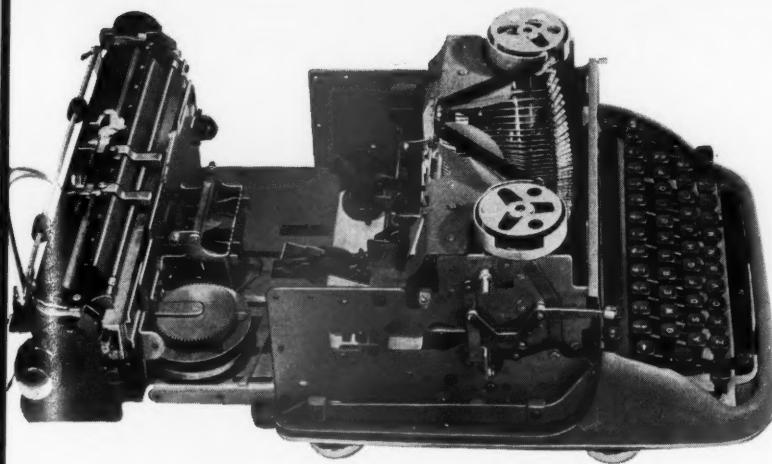
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THE difference between original cost of utility property and the price paid for it when it is sold later on, was a very controversial matter back in the early days of holding company reorganization under the Holding Company Act. Even after the statute had crystallized regulatory policy to some extent, the accounting treatment of so-called "acquisition adjustment" continued to be a bothersome question.

BEGINNING on page 344, SAMUEL M. KOENIGSBERG, Newark, New Jersey, attorney, has made a study of the different practices in this area and gives us a readable account which the layman as well as the lawyer can understand. Mr. KOENIGSBERG is a graduate of Columbia College and Columbia Law School, and he has served on the staff of several governmental agencies, including a turn of service with a Senate study of railroad finance, and ten years in various divisions of the Securities and Exchange Commission. He is a member of the bar of New Jersey and New York.

THE next number of this magazine will be out September 10th.

The Editors



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Coming IN THE NEXT ISSUE

(September 10, 1959, issue)



LIBERALIZED DEPRECIATION AFTER FIVE YEARS

The first and most popular electric utility company treatment of accelerated tax depreciation for accounting and rate making has come to be known as "normalization." Under this method the reduction in taxes due to deferral is offset by a deduction from income, usually designated as a provision for future income taxes. An alternative method has come to be known as "flow through." This can mean either an increase in net income for the company or for credit to the consumers via rate making, or a combination of both. Willard F. Stanley, president, Corporate Services, Inc., New York, New York, has made a careful survey of the advantages and disadvantages to public utility companies in the use of accelerated tax depreciation under both normalization and flow-through treatments.

A STATE COMMISSIONER LOOKS AT THE TELEPHONE INDUSTRY

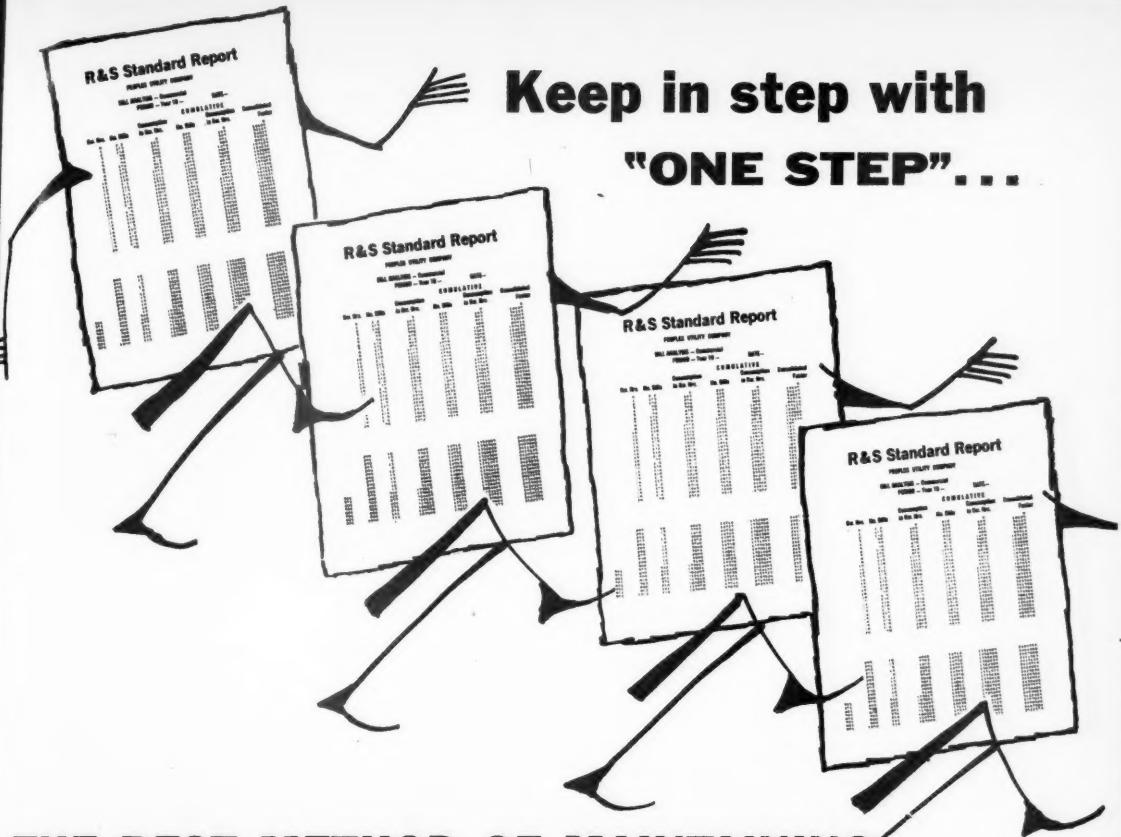
When a telephone company or any other public utility finally files an application for a rate increase with a state regulatory commission, there is an understandable attitude on the part of management to seek prompt action. Procedural problems to one side, what is the impact on the regulatory commission? How is it prepared to cope with the pressure for quick action while conforming with statutory requirements for due process and careful consideration of all factors involved? The Honorable Wayne R. Swanson, member of the Nebraska State Railway Commission, takes us back of the scenes of a telephone rate case to give us the reaction of a regulatory commission under such circumstances.

EVERYBODY IS TALKING ABOUT SECURITY

The word "security" is getting almost as bad as those much-abused words "propaganda" or "communication" in the various ramifications of special meanings intended by different groups who use it. With those who have responsibility for our national defense, security means its armed forces striking power or weapons. With those concerned with the confidential character of government information and data, it means the classification of documents and protection from espionage and allied activity. But to most working people, including those just emerging from schools to become part of the labor force, security has come to mean pensions, retirement, and other allied fringe benefits. Needless to say, this kind of security is a real problem for business management. James H. Collins, Washington, D. C., author of business articles, has made another one of his entertaining "one-man surveys" of how management is taking care of this responsibility.



Also . . . Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.



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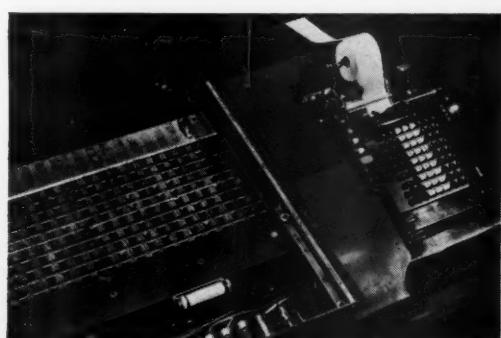
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Remarkable Remarks

"There never was in the world two opinions alike."

—MONTAIGNE

EDWARD H. CHAMBERLIN
Harvard economist.

"Unions have achieved their present position largely through public indulgence and if the public becomes less indulgent, union power can be curbed."

BAUDOIN I
King of Belgium.

"Youth is the first victim of war; the first fruit of peace. It takes twenty years or more of peace to make a man; it takes only twenty seconds of war to destroy him."

WATKINS M. ABBITT
U. S. Representative from Virginia.

"Our free enterprise system is based on solvent government and sound money. If this country is to survive as a nation of free people, we must have economic stability."

JONEL C. HILL
*Oregon Public Utility
Commissioner.*

"The enactment of a convenience and necessity law [in Oregon] should be most seriously considered to head off another period of vicious and unsettling fighting that threatens this state."

CLARK KERR
*Chancellor, University of
California.*

"It is said, by some, that only the unions can scrutinize themselves; that it is not the proper business of anybody else . . . the corporations said this once, too, and they were scrutinized. And the unions will be, too."

DOUGLAS DILLON
Under Secretary of State.

"[Underdeveloped countries] must never come to feel that their choice lies between bread and freedom. Think for a moment what it would mean to our own domestic economy should the great newly developing areas fail to accomplish their economic growth under freedom. Should they in desperation try the totalitarian, communistic way to economic growth, it would be a human tragedy beyond compare for their peoples. It would also mean sheer disaster for us, for our free enterprise system, and for the spirit of freedom that goes with it."

ELMER L. LINDSETH
*President, The Cleveland Electric
Illuminating Company.*

"Some of you may be in the life insurance business. If so, you are well acquainted with National Service Life Insurance. By 1957, this government-operated business had written 6.5 million life insurance policies with a total face value of \$44 billion, one-sixth of all ordinary life insurance in force in the country. This vast government insurance business exhibits all the bad features of virtually every government business enterprise. It pays no tax on property or income, leaving the entire tax load to be carried by citizens who for the most part are not its customers. It taxes these same citizens again for direct subsidies. And because of these financial advantages it is able to undersell private business and thus weaken our free enterprise economy through unfair competition."

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and personnel to prepare
for this rate case!

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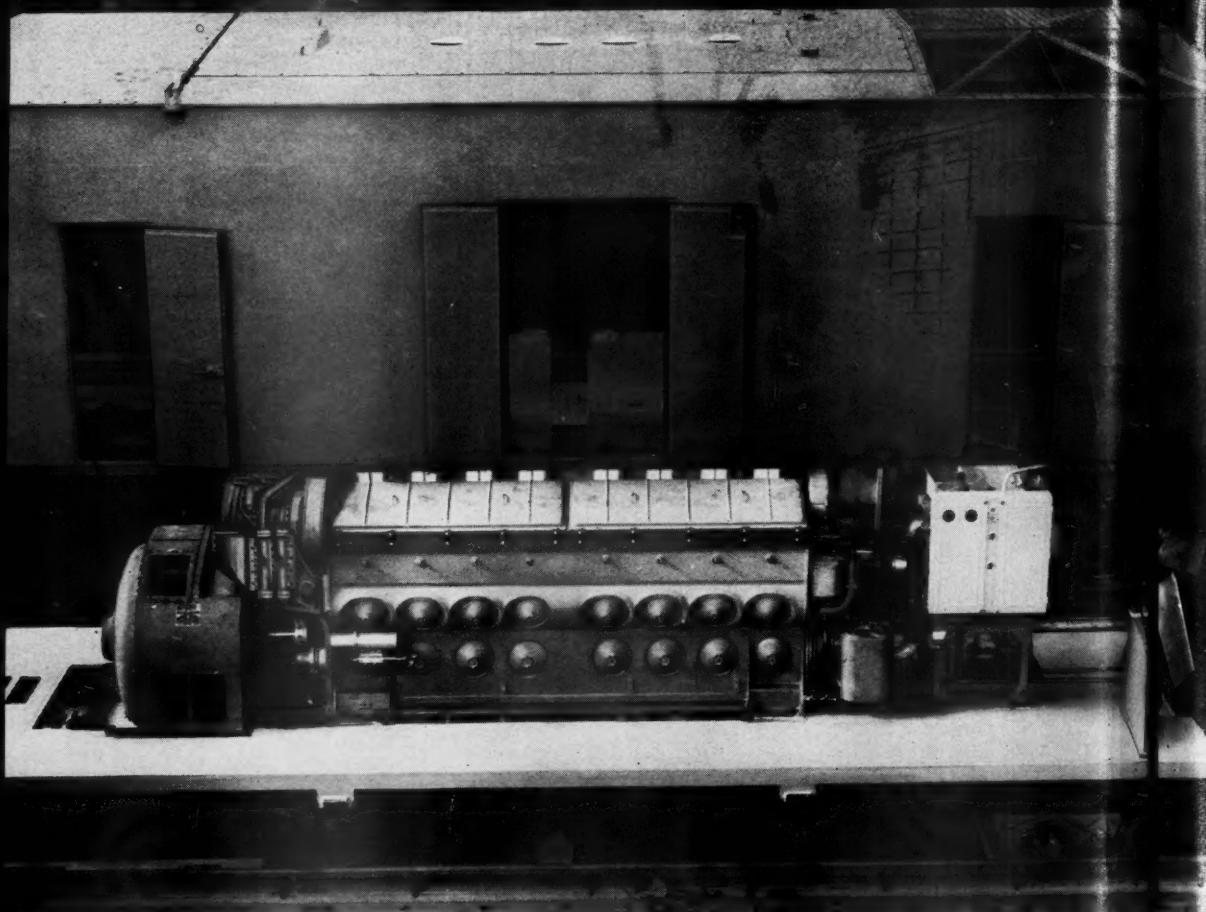


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First, the MU-60 is composed of components that have been applied to a wide range of applications over a 21-year development period. In thousands of hours, under all kinds of operating conditions, their records of performance have set new standards of reliability, durability, and low maintenance. The result is a standardized plant featuring low first cost,* and low operating and maintenance costs.

Second, the MU-60 prime mover—the famous General Motors 567 series two-cycle Diesel engine—is inherently suited to fast starts and changing loads with long service life.

Finally, the plant's basic control equipment provides for unattended automatic operation at a remote location which makes it an ideal choice for area protection.

Because of standard components and design simplicity, the MU-60 has a high degree of flexibility and operational advantages. For example:

- Unitized, self-contained design permits economical installation of less than \$15 per K.W.
- Application at points of load reduces line loss from central locations.
- Building-block principle of application permits fitting power needs to area demand and growth.
- Plant may be increased in capacity at low incremental cost.

Ask your Electro-Motive representative for additional information about the economy and operational advantages of the Electro-Motive peaking plant.

*\$85 per kw, f.o.b., LaGrange, Ill.



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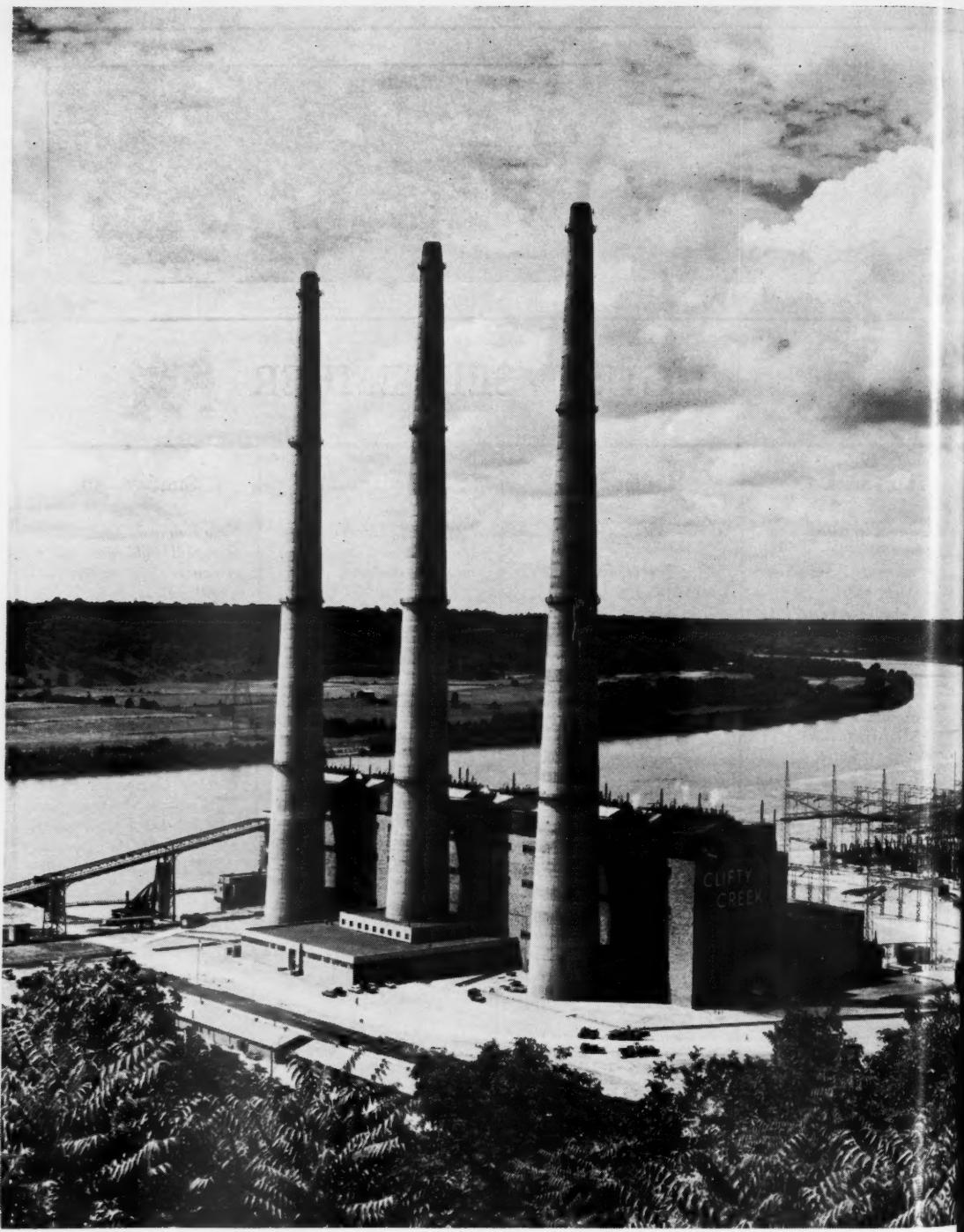
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UTILITIES

A·l·m·a·n·a·c·k

AUGUST - SEPTEMBER

Thursday—27 National Electrical Contractors Association will hold annual convention, New York, N. Y. Sept. 13-17. <i>Advance notice.</i>	Friday—28 Mid-West Gas Association ends three-day gas school and conference, Ames, Iowa.	Saturday—29 Oklahoma Broadcasters Association begins summer meeting, Ardmore, Okla.	Sunday—30 New England Gas Association will hold gas utility managers' conference, Osterville, Mass. Sept. 14, 15. <i>Advance notice.</i>
Monday—31 Metallurgical Society of the American Institute of Mining, Metallurgical, and Petroleum Engineers begins meeting, Boston, Mass.	SEPTEMBER Tuesday—1 Michigan Telephone Association will hold annual convention, Grand Rapids, Mich. Sept. 15-17. <i>Advance notice.</i>	Wednesday—2 International Association of Electrical Inspectors, Southwestern Section, ends three-day meeting, Santa Rosa, Cal.	Thursday—3 Electric Companies Public Information Program will hold workshop conference, Philadelphia, Pa. Sept. 16, 17. <i>Advance notice.</i>
Friday—4 American Water Works Association, New York Section, will hold meeting, Upper Saranac Lake, N. Y. Sept. 16-18. <i>Advance notice.</i>	Saturday—5 Natural Gasoline Association of America will hold Rocky Mountain regional meeting, Casper, Wyo. Sept. 17. <i>Advance notice.</i>	Sunday—6 Public Utilities Association of the Virginias will hold annual meeting, White Sulphur Springs, W. Va. Sept. 17-19. <i>Advance notice.</i>	Monday—7 Illuminating Engineering Society begins annual national technical conference, San Francisco, Cal.
Tuesday—8 American Water Works Association, Rocky Mountain Section, begins meeting, Moran, Wyo.	Wednesday—9 Pacific Coast Gas Association begins annual meeting, Los Angeles, Cal.	Thursday—10 Tennessee Telephone Association ends two-day annual convention, Nashville, Tenn.	Friday—11 American Water Works Association, Wisconsin Section, ends three-day meeting, Milwaukee, Wis.



Courtesy, Ohio Valley Electric Corporation

The Clifty Creek Plant

Reputed to be the world's largest investor-owned steam-electric generating station and (for 1958) rated the nation's most efficient, the Clifty Creek plant is located at Madison, Wisconsin, with a capacity of 1,290,000 kilowatts. It has achieved a rating of 9,130 Btu's per kilowatt-hour of net generation.

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Power Equipment Research and Development — A Key to Power Cost Containment

By J. L. SINGLETON*

The past quarter of a century has seen the efficiency of electric utilities tremendously increased through the use of improved equipment developed by manufacturers. But the demands of the future will challenge the industry to even greater heights of achievement. Actually the tempo of research and development must be greatly accelerated in order to cope with the problems posed by rising costs, enormous power demand, and rapid plant expansion.

RESEARCH and development (R&D) in 1959, industry's furthest advance toward tomorrow, is in reality the sum total of years of creative effort. Today, research and development is a two-fold job, one facet as important as the other. Industrial research scientists and

engineers must not only provide new tools at minimum cost, but must provide them to do a given job better, faster, and at a lower cost.

This double-barreled requirement of R&D in '59 reflects strongly upon the capability of those in industry fulfilling the tasks, for at no other time has so much been needed and so much been at stake. This is particularly true in supplying

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equipment for mounting power needs.

BEFORE describing some of the tools that have been developed by the electrical equipment manufacturing industry, tools that are now helping hold the power cost line, a definition of R&D as used here is necessary. First, there is basic R&D that adds new industries, new products, new markets. Such basic research stretches or extends the avenues of present knowledge, the end result of which may even be something revolutionarily new.

Secondly, there is progressive R&D which differs in that it is a more or less gradual improvement of an existing device or process. Efforts in this area lead to higher efficiencies or cut production time in measurable amounts. It is this kind of development that brings specific tools as close to perfection as possible.

During the past quarter of a century at least a half-dozen appliance industries have grown from basic research, the first type mentioned. If we could go back to the early thirties to shop around for an electric freezer or dish washer; or a television set or combination washer-dryer; a portable air conditioner or dehumidifier, our requests would probably be considered very odd, indeed. Yet, in less than twenty-five years, basic research has provided these and many other power-consuming devices that have brought better living standards and conditions to all of us. At the same time, such products have doubled, or trebled, average home consumption of electric power.

ACLOSE look at the industries that have produced these devices will show, in the main, that they too are new. The power required to build power-consuming

equipment has brought about entirely new areas of load building. The people gaining their livelihood from these industries are also added to the list of power users, at home and on the job.

Progressive R&D can be defined as a gradual improvement in existing equipment to bring about greater benefit through alterations and modifications. More particularly, the power equipment manufacturers have used progressive R&D to the fullest in trying to help the utilities hold the power cost line. Here, we can readily review some of the advances of the past twenty-five years to point to developments that have added their strength to the task of keeping power costs at a remarkably low level.

Generation—Reheat Design and Supercharged Cooling

TWO major factors in the rise in efficiency and size of turbine generators are reheat design and supercharged cooling. Universal acceptance of the proven operating economies of reheat for large turbines about ten years ago by utilities contributed to the high level of performance now being achieved by today's turbines.

Since the first reheat turbine went into service, steam temperatures and pressures have gone up, improving efficiency and economy; overall heat rates have come down, reducing fuel requirements per kilowatt-hour; and size and weight per kilowatt-hour have been reduced, meaning ultimate savings in physical plant costs.

Overall turbine generator redesign aimed primarily at size reduction has proven to be a dollar-saving space saver. With the development of the close-coupled arrangement in 1950, substantial re-

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duction in the unit size of cross-compound units was realized. With two generators and divided turbine standing side by side, a much shorter unit was available compared to the increasingly stretched-out looks of tandem 3,600 rpm machines.

COMPACTNESS of close-coupled design reduces space requirements for large capability units, which readily aids in reducing costs. Existing plants can more easily be converted to higher capacity machines, and new plants can be built with relatively less square foot floor area. Recent examples include a 321-megawatt unit operating at 2,400 psig, 1,050 degrees

Fahrenheit. A similar unit in service is rated 327 megawatts with a steam pressure at the inlet of 2,000 psig. Exhaust blades used in the low-pressure turbines of these units are 46 inches long and have a higher capability than any of their predecessors.

For even more compact units, higher temperatures and pressures seem to offer the best path for increasing available energy. Development studies for turbines using steam at temperatures of 1,100 and 1,150 degrees Fahrenheit with supercritical pressures of 5,000 psi or more now show turbine heat rate possibilities of over 8,000 Btu per kilowatt-hour.

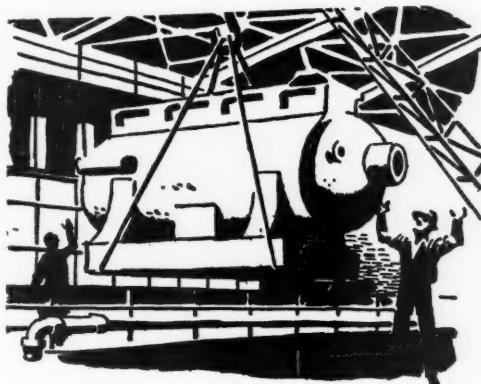
Still Another Improvement

ANOTHER highly significant progressive R&D step was the development of conductor cooling of turbine generators in 1951. It was hailed as a great advance in the long chain of ventilation developments extending over the past half-century. Up to that time, the generator rotor length grew as high-speed turbines became larger. As a result, both stator and rotor became increasingly difficult to ventilate. However, by developing the hydrogen-cooled generator, manufacturers were able to add 20 to 25 per cent to machine capacity. Raising hydrogen pressure from the initial level to 30 psig increased capacity another 19 per cent.

IN contrast to these relatively modest improvements, the application of supercharging to the rotor added an astounding 65 per cent to the output per pound of rotor weight. Complete supercharging of the stator as well as the rotor, along with the benefits obtained from gas pressures of 30 psig and higher, added another large percentage to the output per pound of material.

Year-to-year improvements in basic designs have evolved to present-day compact models that not only save power plant space, but also greatly alleviate thermal and mechanical problems and the asso-

ciated inspection and maintenance costs.



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Transmission—Reduced Insulation, Integral Design, Dual-cooling, Extra-high Voltage

OF the many improvements in the area of power transmission afforded by progressive R&D, none stand out more strongly than those advances made in the design of power transformers. Helping to hold the power cost line are three important development factors. Each of these achievements can be related to substantial savings in equipment and operating costs when viewed in terms of system and service improvement.

The first development factor, reduced basic insulation level, has been applied on utility systems for over twenty years. Compared to units without reduced insulation, substantial savings are readily available since material and ensuing production costs are relatively less. Initially, one step reduction was cautiously accepted. Now, a reduction of one or one and one-half steps is common, and even two steps down is not unusual.

By improving methods and equipment for impulse testing and switching surge tests and developing increasing engineering knowledge of system overvoltages and transformer insulation strengths, a scientific approach to insulation co-ordination was made possible. On the basis of guaranteed arrester values and tested transformer strength, reduced insulation transformers in voltages above 69 kilovolts show a savings potential of millions of dollars annually.

Additional savings can be directly related to the progressive development of integral core and coil and tank bracing, along with other design simplifications. With power transformer ratings increas-

ing in voltage and kilovolt amperes, shipping limits of assembled units became more critical. To avoid the additional costs of field assembly and drying, as well as to cut down on material and weight, design R&D gradually improved integral construction characteristics.

While most transformer cases are braced for pressure and vacuum, the integral design simplifies construction and is applied to both three-phase and single-phase units. Savings gained by a 10 to 20 per cent weight reduction using the integral design are continuing to help hold the cost line of today's power.

Dual-cooled Transformers

FOLLOWING several years of development work in dual cooling of station transformers, recent reports concerning the operation of the first dual-cooled transformer installation indicate another weapon has successfully been forged in the fight to hold the power cost line. With dual cooling, loss of system economy due to reduced plant output based on removal of one unit for maintenance is minimized.

In the dual system, the coolers of two paralleled transformers are mounted in two groups on piping between the units. The interconnection permits each transformer to use its own coolers under normal operation and the coolers of both transformers if one is taken off the line. Thus, emergency capacity of the remaining transformer is greatly increased.

A RECENT evaluation of transmission capabilities pointed to increasing power needs, and the critical rôle adequate transmission facilities will play in fulfilling them. Twenty years ago, the average

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size steam plant was 30,000 kilowatts. Today, it is 91,000 and will probably exceed 125,000 kilowatts in a few years.

The trend to higher transmission voltages began about ten years after initial general expansion of generating facilities. It was just six years ago that the first

extra-high voltage lines in the 330-345-kilovolt range went into service. Now, about 3,000 miles of this range ehv are in service. Since the early fifties, circuit mileage of 230-kilovolt transmission has practically doubled. About 15,000 miles of 230 kilovolts are now in service.

BASED ON currently announced R&D programs, transmission at 460 kilovolts is already drawing interest from several utilities. Projects already planned for the '60 to '65 period include studies of transmission voltages up to 750 kilowatts. Also well under way today are research projects that continue to pile up data concerning performance of various types of cables, conductor materials and insulators, high-strength tower designs and materials, and many others in allied areas.

R&D Must Step up Pace

IT is evident, that with all the advances made to date in putting progressive R&D to work holding the power cost line, more will be needed and at an even faster rate. This means accelerated outlay in talent and man power, again relating directly to the ability of the manufacturers serving the utility industry to support these manifold programs.

Countries such as Russia, where fuel deposits are isolated from population centers, have, from necessity, developed ehv transmission systems. In operation presently in Russia is a 400-kilovolt network, 1,100 miles long. The efficiency of the transmission line from the generator bus to the secondary bus at the receiving substation was said by Russian power officials to be 92 per cent.

The successful application of ehv to long-distance power transmission is said to be a direct result of intensive Russian R&D. The bulk of the research effort was completed at least five years ago; since early in 1956, the first 505 miles went into service.

Nuclear Power—Fission, Internal Superheater; Fusion, C-Stellarator

HERE is an area that is only beginning to fit the progressive R&D concept and bring its strength to bear in helping hold the power cost line. There are very few, however, who do not consider the potential of both fission and fusion as major buttresses of the future power cost struggle.

There is no other area where joint co-operation and responsibility among equipment manufacturer, utility industry, and our country's atomic power agencies have been more evident. This fact becomes clearer when viewed in the light of advances made in nuclear power in just fifteen short years. It has grown from a basic research, war necessity program to second generation power-producing status in that short a time.

The list of relatively advanced projects in the second generation of nuclear power is growing. There are two midwestern projects that are prime examples of joint research and development efforts. One is the 150-megawatt Enrico Fermi plant to

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be erected near Detroit, and the other is the 66,000-kilowatt Pathfinder station to be built near Sioux Falls, South Dakota.

Now in production for the Fermi station are all major power-producing com-

ponents, including the turbine generator. It is interesting to note that the unit will be equipped with cross-under steam re-heaters to reduce moisture at the exhaust for higher efficiency.

ONE OF the important innovations included in Pathfinder plant plans that should prove to be a major step in reducing cost per kilowatt-hour for nuclear plants is the internal nuclear steam superheater. With the nuclear superheater in its core, the reactor will function as a single boiler. Based on this concept, a net operating thermal efficiency of the plant is set at 30.5 per cent—considerably higher than the figure predicted for first generation reactors.

Work on the advanced fusion experimental facility, the C-Stellarator, is well along. The structure that will house the fusion test track and associated equipment at the Princeton University site is almost complete.

While net power is not expected from the controlled fusion reaction experiments, it is another excellent example of the strides made in test devices that are certainly the forerunners of entirely new concepts in power generation.

The need for continuing imaginative, positive, and timely programs cannot be overstressed. Close co-operation between utilities and manufacturers and mutual responsibility are basic ingredients in developing the future reactor generations that will be so important to the continuing availability of low-cost, abundant electric power.

Industrial Dilemma—Narrower Profit Margins, Cyclical Buying

IN order to compete and survive, the manufacturer of heavy electrical equipment must continue to expand his R&D programs. To carry out these objectives, he must set aside a portion of his net profit to finance the task. Here, he is faced with

a dilemma that until recently was given only minor consideration by those who would ultimately benefit most.

With costs of materials, overhead, and labor steadily rising, the manufacturer has been faced with a declining profit margin —his prime source of research funds for the future. When the buyer as well as the seller are inclined to minimize or disregard this factor, the end result is bound to be a slowing of development and growth.

With what the future has to offer, this could become an intolerable situation for both manufacturer and user. The demands for power in the next few years are evident; no one in either area can afford to slight these facts by not realizing his responsibility directly ahead.

THREE is a growing need for continued growth in joint responsibility and, in some areas, for reappraisal of policy, on the part of utilities and manufacturers alike, to be sure power costs remain at as low a figure as possible. Such a responsibility involves mutual interest in a fair return on investment for both. Selling and buying philosophies must include this dual-responsibility concept.

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Cyclical Buying Should Be Eliminated

SINCE much has been said recently about cyclical buying, it deserves consideration here as a negative factor in the task of holding the cost line of power. Heavy electrical equipment is not short cycle production by any stretch of the imagination. We have also discussed the fact that this equipment is and will continue to get bigger. Such a combination of factors, long cycle delivery and production of large, custom-built equipment, must receive close attention to minimize loss of production capability.

Ordering of this type equipment in cycles tends to disrupt the production system that is required to manufacture large items of power equipment. It should be pointed out that production facilities can only operate at top efficiency when scheduling of work permits them to do so. Cyclical buying does not permit realization of maximum benefits accruing from effective use of man power and tools.

By evolving longer-range planning and buying schedules, utilities can help reduce the effects of cyclical buying on

production. Recognition of this fact should ultimately add to the overall net profit picture, which can be directly related to more funds for R&D.

It is possible to forecast what the electrical equipment industry will be spending on R&D ten years from now. On the average, it will approach the 3 per cent of sales mark. And at that time, R&D expenditures will be close to \$3 billion annually.

If we keep our goals broad, then we can continue to make the word electricity synonymous with progress.

Proper Focus on Soviet Production

"NIKITA KHRUSHCHEV'S boast that the Soviet economy can overtake this country's in the foreseeable future] can be dismissed as no more than a campaign promise.

"While I believe the Soviet threat to be serious and challenging, I do not think we contribute to a solution of the problem by exaggerating Russia's economic accomplishments.

"Recent estimates show that we may have overrated the size of the Soviet economy. Its current output may be no greater than one-fifth to one-fourth of ours, as against the 40 per cent figure that has been widely used in recent years.

"None of this means that we can ignore the Soviet threat on the military, political, or economic fronts. There is no question but what the Soviets can, by concentrating their efforts, build a formidable military force and compete in the economic contest for the allegiance of the underdeveloped areas."

—WILLIAM F. BUTLER,
Vice president, Chase Manhattan Bank.

Streetcars Find New Life Abroad

By HERBERT BRATTER*

Used buses and streetcars are not always easy to dispose of. But there is a definite market for them abroad despite differences in track widths and narrow streets. Here is a review of the experiences of various American companies in selling their outdated rolling stock in Canada, Latin America, Europe, and elsewhere.



BECAUSE traffic congestion is forcing many American transit operators to turn increasingly to buses, finding customers to buy the surplus streetcars, many of which are still good for thousands of miles of service, becomes a problem.

Right after World War II ended, a worth-while export market for second-hand American buses and streetcars was discovered by a number of transit companies, and many trolley cars, which carried war workers and others to their jobs in New York city, Kansas City, Denver, and a considerable list of other metropolitan

centers, are still performing faithfully in several Canadian cities and in various centers of Latin America.

OUTSIDE of the western hemisphere, exports of used American transit equipment have been relatively infrequent. A few streetcars taken from American streets have been supplied to Korea through the International Co-operation Administration. Vienna, Austria, has found such American equipment to be a good bargain. And reconditioned American streetcars greatly helped Brussels, Belgium, cope with the throngs visiting the 1958 international fair. However, differences in track gauge and traffic clearance problems have hampered transit com-

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panies here in finding markets for used equipment in Europe.

INFORMATION on the sale of secondhand streetcars and other transit equipment is available in only fragmentary data, chiefly in the form of short news items in the trade press and daily newspapers of the localities concerned. The information presented below has been assembled with the aid of the American Transit Association, the Transit Research Corporation, the Transit Equipment Company, individual transit companies here and abroad, the U. S. Department of Commerce, the ICA, the General Services Administration, and others.

U. S. government export statistics, it may be noted, are of little help in ascertaining the volume of business in used transit equipment, including rapid transit equipment, since the data are lumped together with those pertaining to railway rolling stock. Similarly, used bus exports are combined with those of other used automobiles. Since in any case there is a better market at home for used buses than for used streetcars, this article is not much concerned with such automotive equipment.

Transit Research Corporation Report

DAVID Q. GAUL, engineer of the Transit Research Corporation, reports that no sales abroad of used rapid transit cars are known to the corporation. However, interurban cars, as well as conventional city cars, have been sold abroad by the Pacific Gas and Electric Company. The buyer of the interurban cars is believed to have been in Brazil while the streetcars were sold to Vera Cruz and Mexico City

transit companies. Tampico has provided a market for surplus cars of the Kansas City Public Service Company, while Mexico City, Mr. Gaul states, has bought PCC cars from Twin City Rapid Transit and the Detroit Street Railway.

MARKETS abroad, outside of Latin America and Canada, are limited, according to the Transit Research Corporation, because:

- (1) The widespread use of meter track gauge makes it difficult and costly to rebuild American streetcars.
- (2) Even where standard or wide gauge is used, American streetcar body dimensions are such that the cars won't clear in many foreign operations.

Additional factors which have interfered with the export of used transit equipment since World War II have been shortages of dollars in some countries and rising shipment costs. During the war, Brazil offered in the U. S. market 24 trolley cars it had bought from the BMT in New York because shipping costs had made delivery in Brazil prohibitive.

Some Typical Sales

WHEN buses displaced streetcars in Springfield, Massachusetts, some years ago, 50 of the unneeded vehicles were sold to Canadian transit authorities. Montreal took a number of the cars, rebuilding them for two-man operation.

At Vancouver in 1956 the British Columbia Electric Company announced plans to buy 40 used trolley coaches from the Birmingham Transit Company, at a total cost less than that of six new buses.

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Profitable Canadian Business

IN 1957 the Greater Winnipeg Transit Commission bought 28 used trolley coaches from two U. S. transit companies. From the City Coach Lines of Flint, Michigan, it acquired ten 1951 46-passenger Brills at \$3,000 apiece. From the United Transit Company of Providence, Rhode Island, it bought ten 1947 44-passenger Pullman trolley buses at \$2,500 each, and eight others at \$1,500 each. After freight, tariff, Canadian sales tax, and overhaul expenses, the Winnipeg Transit Commission estimated the total cost at between \$7,000 and \$8,000 per vehicle, as compared with \$30,000, the cost of a new trolley coach in Canada.

The overhauling process was carried out without additional man power or resort to overtime work, as routine overhauls were suspended while the imported buses were being prepared for service. During the process bumpers were replated, bodies repainted inside and outside, hubs repacked, fixtures replaced, and steering, transmission, and brakes checked.

Canada a Fair Outlet

IN recent years Toronto, Canada, has put into service a considerable number of used American streetcars which formerly served the public in Cincinnati, Kansas City, and Birmingham.

The Birmingham Transit Company announced in September, 1952, that it was replacing 48 streetcars with a larger number of modern trolley coaches. The 48 streetcars were sold to the Toronto Transportation Commission. In 1957 the Kansas City Public Service Company sold 30 streetcars to Toronto to permit the retirement there of some 35-year-old streetcars used only in rush hours. The Kansas City cars had been in service since 1947. The used cars cost Toronto \$13,000 apiece, whereas new ones would have cost about \$65,000. TTC Chairman Allan Lamport, in announcing the transaction with Kansas City, said:

When Kansas City offered to sell at a very reasonable price, it gave us the opportunity to replace obsolete, slow equipment and thereby improve our service. This purchase will enable us to keep our streetcar fleet in good condition for a few years until more rapid transit lines are constructed.

THE 52 old streetcars sold by the Cincinnati Street Railway to Toronto in 1950 were all reconditioned by the buyer in Toronto. Since the gauge was different the tracks had to be changed. A considerable amount of temporary track of the Cincinnati gauge was laid in the Toronto shops to move the imported cars about while being reconditioned. To fully convert the cars to Toronto requirements required fourteen days' work on each car: six days for truck and electrical work, three days for body repairs, four days for repainting, and one for inspection and trimming.

All the cars were converted from double trolley to single trolley pole system. Wiring circuits were modified. Seat backs were repainted and some upholstery was repaired. Ventilators were moved from left side to center of front vestibules. Drawbar anchors were changed to accommodate TTC's straight drawbars.

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Other changes included: shortening of axle bearing housings to allow wheels to be brought closer together, Toronto's rail gauge being $3\frac{1}{2}$ inches narrower than Cincinnati's; conversion of doors to standard TTC outward folding doors; and repainting the outside of the cars in TTC's colors.

Summarizing for the U. S. Consulate General its purchases of used transit equipment in the United States in recent years, the Toronto Transit Commission in February, 1959, supplied the table shown below.

THE items in the table are the only used vehicles bought by the TTC outside Canada during the years covered. The commission states:

It is almost a certainty that [in the future] we would not purchase any used subway cars, streetcars, or buses made outside of the country. The future purchase of trolley coaches is problematical, depending on age, condition, price, regulations, etc.

"Our experience with the vehicles purchased," the TTC adds, "has been satisfactory. . . . They were purchased for cash and we feel good value was obtained for the money spent."

Latin American Customers

LATIN AMERICAN cities have been customers for used American transit

equipment from time to time, especially Mexico City. The latter has bought both streetcars and trolley coaches. These imports have contributed greatly to the comfort of Latin American transit riders, previously compelled to use very antiquated street railway equipment.

In 1955, for example, the Denver Tramway Corporation sold to Servicio de Transportes Electricos del D. F., Mexico City, 66 Marmon-Herrington 1948-1949-1950 trolley coaches of 48-passenger capacity. Repainting and some reconditioning were done in Denver before shipment. In Mexico the Denver coaches were used not only to displace outdated equipment, but also to open new routes.

Twin City Rapid Transit, replacing streetcars with buses, found buyers for the old equipment in Ohio, New Jersey, and especially in Mexico City, which bought 91 of the vehicles in 1953. In 1955 Mexican transit officials contracted to buy from the Detroit Street Railway Commission 183 streetcars at a total cost of \$699,000. This sum included \$4,000 apiece for 150 late-model cars and \$3,000 apiece for 33 older ones.

DURING the early postwar years several dozen used streetcars were bought by Mexico City's transit enterprise from the UER in Providence, Rhode Island, through the Transit Equipment Company, New York city. The cars dated from 1922-23.

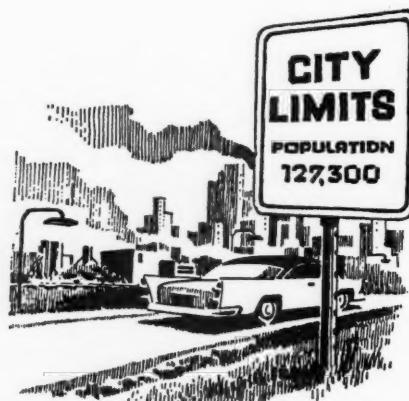
Item	Quantity	Manufacture	Date of TTC Purchase	Original Mfgr.	Bought by TTC from
Trolley coaches	15	1953	1948	Marmon-Herrington	Cincinnati
Streetcars	52	1950	1947	St. Louis Car Co.	Cincinnati
	50	1952	1946	Pullman Co.	Cleveland
	25	1952	1946	St. Louis Car Co.	Cleveland
	48	1952	1947	Pullman Co.	Birmingham
	30	1957	1946	St. Louis Car Co.	Kansas City

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According to information supplied to the American Embassy in Mexico City by the director general of the electric transport service mentioned above, the latter has bought in all 274 PCC streetcars, 66 Marmon-Herrington trolley buses, 58 Pullman trolley buses, and 67 Transit buses, all of which have given sat-

isfactory service. There is in Mexico interest in additional used American transit equipment, the director general states.

The Transit Equipment Company, according to press information, has sold used transit equipment in Rio de Janeiro, Sao Paolo, Lima, Vera Cruz, and other Latin American cities.



LATE in 1945 the Worcester Street Railway Company sold in Argentina and Chile about 60 used trolley cars and 20 other pieces of transit equipment, such as sweepers and work trucks. The following year 50 Yellow Coach buses operated by the Public Service Co-ordinated Transport of New Jersey were sold to Venezuela. In 1947 it was announced that the New York City Omnibus Corporation had sold 45 of its old 32-passenger buses to Latin American buyers at a unit price of about \$2,500, with some concessions for bulk lots. Additional sales in the same area were contemplated. Since the buses sold had been partly written off, sales represented a profit of about \$1,500 apiece.

THE Seattle Transit System about 1955 retired 129 gasoline and diesel engine coaches acquired in 1940 and 1941. While 56 of the vehicles had to be junked, buyers were found for the rest at prices of from \$700 to \$1,250 apiece. A Peruvian transit system bought 23. The others were sold in Alaska.

Twenty one-man streetcars, completely

reconditioned and repaired, were sold by the Boston Elevated Railway for service on the electric railway at Paranagua, Brazil.

A dealer long active in the exportation of used transit equipment is the Transit Equipment Company, New York. The firm deals in cars, buses, airplanes, locomotives, and power machinery. Its presi-

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dent, Raymond W. Marshall, writes:

I have been dealing in used rolling stock for electric railways since 1906 and during that time probably have shipped electric railway cars to more than half of the countries of the world. . . . In addition we have shipped various lots of separate railway motors, trucks, compressors, and other portions of electric railway cars abroad.

TRANSIT EQUIPMENT COMPANY maintains a warehouse and plant at Passaic, New Jersey, where most of its exports are overhauled and repainted. The company also deals in substation equipment.

During the past decade the company has sold:

To Sao Paolo, Brazil, 75 aluminum motor passenger cars formerly operated on the Broadway lines in New York city by the Third Avenue Railway Company.

To Lima, Peru, 12 modern steel electric railway motor passenger cars formerly operated on the Third Avenue lines by the Third Avenue Railway Company.

To Mexico City, 150 modern lightweight steel motorcars formerly operated in Providence, Rhode Island. (On 50 of these cars there is still a small balance due.)

To Brazil, 75 Brill trolley buses formerly operated in Denver, Colorado.

Some European Sales

IN postwar years several Yugoslav cities have been using secondhand British passenger buses: double-deckers in Sarajevo and Novisad and London Transport

single-deckers in Belgrade and Zagreb. Belgrade got 65 of the vehicles and Zagreb, 10. Rebuilding was necessary to move the entry and exit doors from the left to the right side of the buses, as Yugoslavian traffic travels on the right side of the street. In the case of the double-decker buses, however, this alteration was too costly to make. The buses retain the original British red, only the name of the transport council having been painted over, although remaining faintly legible none the less. Lack of enough spare parts has been a handicap in the use of the London buses in Yugoslavia.

As a result of Yugoslav inquiries to the U. S. government, the D. C. Transit System, Inc., received an order for 50 surplus PCC trolley cars built by the St. Louis Car Company and being decommissioned because of conversion of D. C. Transit to bus service. The cars are being repainted to specifications. Repainting and spare parts are estimated to cost about \$225,000. No other alteration is required.

THE first shipment of cars, which are to be used in Sarajevo, was made in February, 1959, and other shipments through 1959 are scheduled. The streetcars are being shipped four at a time as deck cargo on Yugoslav and U. S. vessels carrying grain.

In Sarajevo the streetcars will, contrary to most European practice, be operated with the same techniques as are used in Washington; that is, a single operator instead of two men, along with the use of coin boxes. Generally in Europe each streetcar carries a conductor as well as motorman, and passengers are issued individual tickets punched to show the origin and destination of each passenger's trip.

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D. C. Transit's contract with Yugoslavia calls for a complete check up for

any vehicle which has been in use for 8,000 miles.

IN Belgium Electrobel, an affiliate of the Société Générale de Belgique, in February, 1956, bought 77 PCC-type motorcars of 1.5 meter track width in Kansas City, where they had been used for seven years. Since the bodies of the cars were too wide for Brussels traffic they were bought without bodies at a price of \$4,500 apiece, plus packing and transportation expenses. The last shipment of this transaction occurred in 1957. In Belgium the cars were fitted with new bodies by La Brugeoise at Nivelles, well-known Belgian rolling stock manufacturers, and sold to the Société des Transports Intercommunaux de Bruxelles, which put them in service in time for the increased traffic incident to the International Exhibition 1958.

The above-mentioned cars have given complete satisfaction, being of excellent quality, inquiry in Brussels discloses.

THE Viennese were very pleased with the streetcars bought in 1949 from the Third Avenue Transit Company of New York. Never before had they had such excellent and convenient transit vehicles. Of 45 streetcars acquired from New York, three were broken up to supply spare parts and the remaining 42 were rebuilt. According to Gunter Stetze, writing in *Mass Transportation* in 1951, the chief alterations which had to be made related to arrangement and improvement of doors and interiors. In New York the cars were operated by one man, whereas in Vienna a motorman and conductor are employed.

Therefore, the single folding door at the rear platform of the cars was replaced by a double one controlled by the conductor instead of by the motorman. For the American trolley pole a Siemens pantograph was substituted. The "roof sticks" were improved, direction lights installed, and isolation of the motorman provided. After rebuilding, the cars had a capacity of 48 seats and room for 46 standees.

A drawback from the operational aspect was that the American streetcars were 25-30 centimeters wider than the usual European "profile," with the result that in Vienna they could be employed on only certain routes and not generally throughout the city. The cars' contour also made it impossible for them to be shipped via Genoa, the shortest route, because of "profile transgressions" on the mountain railroad routes. As a result the vehicles went to Vienna by way of Rotterdam, Cologne, Munich, and Salzburg.

In Bremen, Germany, purchase of used American streetcars had to be given up because they were slightly too large for local requirements.

THE International Co-operation Administration in Washington and its predecessors have been instrumental in putting old American streetcars into operation in Korea, foreign aid money being used for the purpose. Korea several times has been the recipient of aid in this form. In 1950 Korea obtained six old Atlanta streetcars. In 1955 ICA announced that it was looking for 64 old streetcars for use in Seoul and Pusan, Korea. In January, 1957, 11 used cars of the Los Angeles

STREETCARS FIND NEW LIFE ABROAD

Transit System, bought by ICA, were sent to Korea. The cars were rehabilitated by retired streetcar personnel in Los Angeles.

Bombay, India, is using a number of streetcars which once belonged to the Third Avenue Railway System, New York.

THIS brief and perhaps somewhat spoty review of the postwar export market for used transit equipment shows that secondhand streetcars in good operating

condition can find markets abroad, especially where track widths and narrow streets present no special problems. European cities, which use streetcars more extensively than we do, would provide a better market were it not for differences in track gauge. But, as the examples of Vienna, Brussels, and Toronto, cited above, reveal, such difficulties can be overcome.

In this, as in other export business, circumspection in respect to the financial arrangements is advisable.



Socialism Compared

"ACTUALLY Britain, today, might be said to have more of the attributes of true Socialism than Russia. The British economy is mixed but the socialized institutions such as railroads and mines were taken over by the government through will of the people. And control of them, in the final analysis, is in the hands of the people who can elect a new government whenever they don't like the policies of the old.

"A similar statement might hold true for the U. S. We have been mildly socialistic from the start. Our living standards, highest in history, have not depended so much on any one, pure economic system as in freedom to change and freedom to seek the good of the people rather than the good of a set of autocratic rulers.

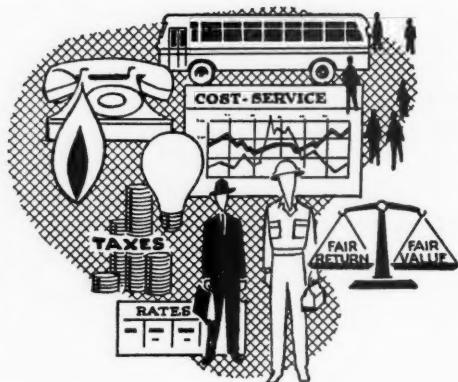
"What we selected here in the U. S. was a large percentage of free, capitalistic enterprise—the first time in all history such a thing had been tried on a large scale. In our opinion that choice was vastly responsible for our rapid progress, but that argument does not belong in this discussion.

"The important thing is that if Americans want pure Socialism—for their own reasons and regardless of its efficiency—they are free to choose it, while the Russians are not."

—EDITORIAL STATEMENT,
The Washington (D. C.) Daily News.

Acquisition Adjustments In Rate Cases

The commissions of some states are rigid in their thinking on acquisition adjustments. They not only consider them improper rate base items, but will not permit amortization of such amounts to be charged to operating expenses. In other states the converse of this attitude obtains. Various results occur where commissions are flexible.



By SAMUEL M. KOENIGSBERG*

THE term "acquisition adjustment" represents the difference between the original cost of utility property and the price paid when it is sold later on. How is an acquisition adjustment treated by state regulatory commissions for rate-making purposes? If a commission accepts it as a part of the rate base, the rate base is of course increased. If not, the rate base may remain at original cost. A related question is how the annual amortization of an acquisition adjustment is treated. One alternative is to regard the amortization as equivalent to an operating expense. It can then be recouped in the income which the utility is permitted to earn, just as any operating expense is recouped. Another alternative is to charge an annual portion of the acquisition adjustment against surplus. It will then be borne by the utility's stockholders.

The various treatments are thus of considerable dollars-and-cents importance.

*Newark, New Jersey, attorney. For additional personal note, see "Pages with the Editors."

Furthermore, under current price levels, utility properties are likely to be offered for sale at prices much greater than the original cost of plant installed a number of years ago. The treatment which a commission will accord to this excess may often determine whether or not an acquisition will be made at all.

COMMISSION rulings on these questions show a marked cleavage, pro and con, on both the issues posed above. Other states appear to be uncommitted. Variations in doctrine, moreover, have occurred even in commissions which once were firmly committed. A survey of the last decade's trends in this field may therefore be useful.

States Excluding Acquisition Adjustments

HISTORICALLY, the issue began to take shape largely when regulatory commissions adopted uniform systems of ac-

ACQUISITION ADJUSTMENTS IN RATE CASES

counts for utilities, in the late 1930's and the 1940's. The acquisition adjustments dealt with then were commonly the results of the familiar competitive and preemptive purchases of utility properties in the 1920's. Purchase prices were often remote from considerations of foreseeable earning power, and commissions were loath to increase rates in order to validate them. So acquisition adjustments were often ruled out of rate bases.

The problems of the past decade, however, have involved largely purchases made well after the 1920's and based on less blind optimism. Nevertheless, the exclusion of acquisition adjustments remains a fairly fixed rule of many commissions. These include New York, Illinois, Colorado, Connecticut, Florida, Indiana, Kansas, New Mexico, North Carolina, Oklahoma, Rhode Island, West Virginia, and Wyoming.

Some of these commissions adhere to an original cost rate base in the strict sense of the term—the actual-money cost of property at the time when it was first dedicated to the public use. Under these rulings, the fact that a utility pays more than original cost for property does not warrant it in including the excess in the rate base. But the Indiana commission, utilizing a fair value rate base, with original cost not the sole controlling factor, has also ruled out acquisition adjustments. New Jersey appears to have followed a similar course.

SOME commissions put the question in terms of burden of proof. They rule out an acquisition adjustment because, they imply, the utility has failed to justify its inclusion. Conceivably, even these com-

missions might be convinced by a strong showing that the excess properly belongs in the rate base. But the burden is not light. The fact that the acquisition price was reached in arm's-length bargaining—a circumstance which courts and administrative agencies usually accept as an indication of the fairness of a price—does not ordinarily persuade commissions in this group.

Thus, in a New York ruling, although the price was above original cost, the commission agreed that the purchase was at arm's length, the transaction was in the public interest, and consumers in the area of the acquired utility would receive a rate reduction of almost one-third. But not even these factors induced the commission to depart from its doctrine that ruled the excess out of the rate base.

In states where this doctrine prevails, it usually follows that the annual amortization of the excess may not be included among operating expenses. It is charged to surplus.

States Including Acquisition Adjustments

A NUMBER of other commissions generally permit acquisition adjustments to be included in the rate base. To use the language of a Louisiana commission's ruling, the excess over original cost may be included in a prudent investment rate base if the excess

was paid as the result of arm's-length bargaining between nonassociated buyer and seller, if the excess was necessary for the integration of the property into a larger and more efficient system, and if the purchase necessitating the excess did or reasonably should have re-

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sulted in public benefit by improvement of service to customers or lowered rates or both. . . .

The Missouri commission interpreted an original cost concept in a statute to include

a fair price paid when the properties are acquired by a subsequent purchaser.

This appears to enlarge the concept of original cost to permit consideration of the price paid by a buyer as a rate base factor.

PERHAPS the most vigorous exponent in recent years of admitting acquisition adjustments to the rate base has been the Arkansas commission. It has authorized their admission even in a case where, under orders of the Federal Power Commission, a company had earlier written the acquisition adjustments off its books, but now restored them for purposes of the Arkansas rate hearings. The Arkansas commission found that the purchases which gave rise to these items had been arm's-length transactions, and were "of material and continuing benefits to the customers throughout the entire system of the company." Accordingly, it held, the company could include in its rate base the excess over original cost, and could properly claim a return on it.

A consequence of rulings of this character is that the annual amortization of the excess has been recognized as an appropriate deduction from revenue for the purpose of computing a fair return. Moreover, since the amortization charge is not an allowable deduction for income tax purposes, the Arkansas commission has recently added the tax differential in arriving at the total amortization. In reaching this result, the commission expressly disagreed with the superior court of Pennsylvania, which held that the amortization of an acquisition adjustment could not be regarded as similar to an operating expense. The Arkansas commission expressed its preference for the opinion of the Pennsylvania judge who dissented.

IDAHO and Kentucky utilize a "net investment" rate base, and include factors in addition to original cost. These states admit into the rate base only the "tangible" portion of the acquisition adjustments. Writers in the field, however,

have questioned the validity of a distinction between tangible and intangible portions of such items.

Other commissions whose recent decisions admit acquisition adjustments to the rate base, and correspondingly allow annual amortizations to be treated as an expense, include Alabama, Georgia, Michigan, New Hampshire, Utah, and Virginia.

The Revival Problem

OCASSIONALLY in a rate proceeding a commission will have to decide whether to admit to the rate base an item which arose out of an acquisition made years before. Commissions following a policy of excluding acquisition adjustments find the remoteness of time an additional factor justifying the exclusion. For example, Maine and West Virginia exclude acquisition adjustments where the physical plant whose sale gave rise to the adjustments has previously been retired. The Illinois commission in one rate case

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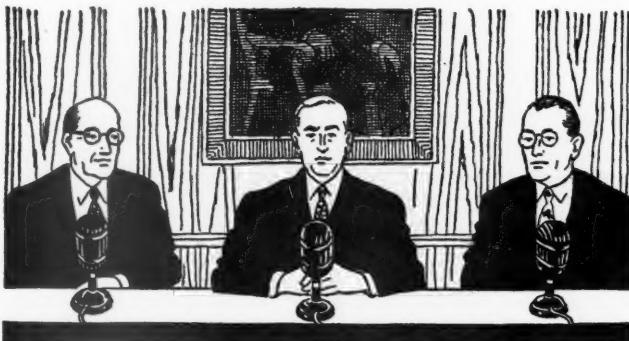
pointed out that if a 15-year amortization had been begun promptly after the purchase, the acquisition adjustment would have been retired well before the rate proceedings. It accordingly refused recognition to current amortization as an operating expense.

AMONG states in which acquisition adjustments are admitted to the rate base, Georgia recognizes them notwithstanding that the items arose many years before and could have been eliminated by amortization before the rate proceedings.

The commission's reason was that amortization had not been required of the utility company when the item arose, and that the acquisition adjustment represented actual investment and resulted from arm's-length bargaining. But the Louisiana commission, in a case where a company had previously elected to charge an acquisition adjustment to surplus, pointed to this treatment, and to the further fact that the amortization of the item would long have been completed had it been started at the time of the acquisition, as reasons for not reinstating the item for rate-making purposes.

Two Different Regulatory Patterns

THE discussion above has shown two clear-cut lines of authority. Each deals with two problems, and deals with them in an internally consistent way: 1. Some states (a) regard adjustments to be improper rate base items, and (b) treat their amortization as not properly chargeable to operating expense. 2. Other states (a) hold them a proper rate base item, and (b) regard their amortization as a proper operating charge.



IN a small number of states, however, developments have not followed a rigid path. Some commissions have considered it advisable to fuse the two lines of rulings, with interesting results.

Pennsylvania is one example. In 1951 the Pennsylvania commission approved the amortization of an acquisition adjust-

ment as a charge to operating income. It regarded the amortization of the excess above original cost as corresponding to depreciation of the original cost of plant.

A similar ruling soon after was appealed to the Pennsylvania court. A majority of the court rejected this treatment. It held that the acquisition adjustment rep-

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resented "strategic or pre-emptive value" beyond original cost, in expectation of increased earning power; that in so far as the expectation was unrealized, the "imprudence" in the expenditure was the stockholders'; and that (with some loosely described exception) the ratepayers could not be compelled to pay a return on the investment, nor could they be required to restore the excess to the company by the amortization of the cost as an operating expense. Although the door thus seemed to close on acquisition adjustments, it was not slammed shut. The court said that, since the acquired intangibles did not depreciate or wear out, the amount paid for them could remain permanently on the company's books. On the basis of this observation, the Pennsylvania commission, in a recent ruling, apparently felt free to give consideration to the unamortized balance of some acquisition adjustments for rate base purposes, since Pennsylvania has a "fair value" rate base not confined to original cost alone.

THIS sequence of rulings appears to permit a utility to earn a return on the amount of its acquisition adjustments, or

at least on so much of them as a commission considers to be part of a "fair value" base. Furthermore, it seems possible that the treatment which the Pennsylvania commission has adopted may serve to lock in all or part of the acquisition adjustments as a permanent portion of the rate base.

IN 1953 rulings, the Washington state commission excluded an acquisition adjustment from an original cost rate base, and treated amortization of such an item as a charge to surplus. But in a third case the same year, the Washington commission, adopting a "practical viewpoint" expressed by an expert witness on the staff of the Federal Power Commission, admitted to the rate base a substantial proportion of acquisition adjustments, notwithstanding the same witness' assertion that such items practically always represented intangible value. Factors in the ruling were the additional generation and transmission capacities which resulted from the acquisitions, the consequent increased diversification of load, and the company's history of rate reductions and adequate service.

THE California commission several years ago appeared to have accepted some acquisition adjustments as part of plant in service for rate base purposes, while rejecting others. In a more recent opinion, however, using an original cost rate base, it held their inclusion improper. Notwithstanding the latter view, the amortization of acquisition adjustment items is permitted as an operating expense. But to attain this result, the California commission requires a showing, somewhat akin to that in the Washington ruling just noted, that the acquisition was in the public interest—by elimination of duplicate facilities, lowering of operating costs, etc.—and that the items represent the cost of plant in service.

WISCONSIN also has effected compromise rulings. It excludes acquisi-

tion adjustments from the rate base. It permits their future amortization, how-

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ever, as an expense in lieu of depreciation.

Even a commission which, as a rule, adheres firmly to a policy of excluding acquisition adjustments from the rate base may sometimes countenance a departure from a rigid stand. The New York commission, in a proceeding involving a gas utility, initially held acquisition adjustments to amount to nearly \$1½ million, and it disallowed them. The utility took the matter to court. In the course of the litigation, however, it came to terms with the commission. As a result, less than \$500,000 was charged to surplus accounts. The commission agreed that about \$250,000 could be added to plant in service, and about \$600,000 deducted from the plant depreciation reserve. Thus a substantial proportion of the figure once considered to

comprise acquisition adjustments found its way into the company's rate base.

Conclusion

THE discussion here has shown a broad cleavage in how utility commissions have treated acquisition adjustments for rate-making purposes. But it has also shown areas where the lines overlap and a flexible approach has emerged as the dominant attitude. It may suffice to conclude, therefore, with the suggestion that the examples of fusion and flexibility may well provide profitable avenues for further study. This would be important, of course, from the standpoint of rate-making theory. But even more significant may be the consequences in terms of modifying rigid commission practice and rigid rate structures.

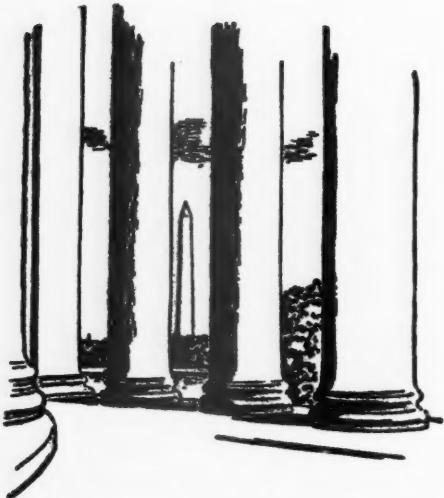
"**T**OO, many members of the House and Senate have been either indifferent or overwhelmed by the complexities of the budget, which means they have been spending more than \$70 billion a year at least partially in the dark. It is said only a handful of Congressmen really understand the full budget. . . .

"Incredible as it sounds, most appropriation legislation is passed solely on the basis of the arguments advanced for the bill itself without consideration of the funds that the department or agency has accrued from previous appropriations. . . .

"After three years of legislative battling, Representative Glen Lipscomb (Republican) of Los Angeles and fellow members of the Government Operations Committee finally won passage of a measure putting the federal budget on a pay-as-you-go basis. The most formidable opposition came as expected from the ranking members of the potent House Appropriations Committee.

"The basic principle of the new measure is so obvious that it's hard to believe it wasn't enacted until the 85th Congress. In the future, Congress, like private industry and business, will appropriate the actual amounts to be spent each year by executive departments and agencies after first learning how much of a surplus is on hand in the bureau."

—EDITORIAL STATEMENT,
Los Angeles Times.



Washington and the Utilities

TVA Budget Control Doubtful

PRESIDENT Eisenhower on August 6th signed the Tennessee Valley Authority self-financing bill. He did so after receiving assurances from House and Senate leaders that the lawmakers would quickly eliminate a provision in the measure which he said encroached on the powers of his office.

The section of the bill which the President found objectionable would have allowed the TVA board to submit its building program to Congress for a 90-day period. The Congress could increase or decrease the amounts requested, but the President could not. There would be no executive department review of TVA construction as the bill is written. President Eisenhower said he found this "wholly unacceptable."

"Accordingly," the President said in a statement, "I have conferred with leaders of both parties in the Senate and House of Representatives; we are in full agreement that the independence of the executive and legislative branches must be preserved. I have been informed by these leaders that legislation will be passed

swiftly by both houses deleting this objectionable feature. In accordance with that understanding, I have approved HR 3460."

Mr. Eisenhower's feelings on the bill were made known at a regular press conference preceding the signing of the bill. He said then that he had been giving the TVA bill more study "more earnestly and with more lawyers and that kind of thing than almost any other bill I've seen in a long time."

He said of the objectionable provision that any time a bill encroaches on one or the other of the equal branches of this government it is "a very, very serious mistake and one where the long-term effects can be serious indeed." Senator Johnson (Democrat, Texas), majority leader, told the Senate later that neither Congress nor the executive branch is interested in "transgressing" on the powers of the other.

IMMEDIATELY after the President signed the bill Johnson brought the correcting legislation up in the Senate and that body quickly voted to delete the objectionable

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feature. The House, in recess for the week end, could not act before August 10th.

THE self-financing bill carries a formula designed to specify the geographical boundaries of the TVA power system and provides for two types of repayment by TVA of federal money already put into the system. As set out in the legislation, TVA would be required to repay on a semi-annual basis, the approximately \$1.2 billion the government has invested in the TVA plant.

So as to assure that the government does not lose money on funds advanced to TVA, the payments are to be at a rate equal to the rate the Treasury is then paying to borrow money.

Notwithstanding the President's satisfaction with the assurance given him by congressional leaders, it is by no means certain that the mere elimination of the 90-day congressional veto provision leaves either the President or Congress with any budgetary control over TVA at all. Some observers jumped to the conclusion that the law as finally enacted and amended, would leave all TVA expansion programs subject to review by the Budget Bureau, just as in the case of other government agencies.

But this does not seem to square with the following provision of the new law regarding the issuance and sale of bonds and the expenditure of and proceeds therefrom:

The issuance and sale of bonds by the corporation and the expenditure of bond proceeds for the purposes specified herein, including the addition of generating units to existing power-producing projects and the construction of additional power-producing projects, shall not be subject to the requirements or limitations of any other law.

If that provision means what it says, neither the financing nor the expenditure of proceeds would be subject to the requirements of any other law, including the Budget and Accounting Act of 1921 and the Government Corporation Control Act of 1946. As a matter of fact, when Congress included in the original bill the language about the 90-day veto which the President found so objectionable, there was an implication that such a limited form of control was needed in the absence of any other control. In other words, as the law now stands it might be argued that neither the President nor Congress has any authority in law over the expenditure of the proceeds from revenue bonds.

As a practical matter, however, this may be academic quibbling. Under the U. S. Supreme Court decision in the Morgan case (which upheld the late President Roosevelt's right to fire any member of the TVA board), the TVA was held to be an operating rather than a regulatory agency—therefore subject to executive control. This was to distinguish the Morgan case from the earlier Humphrey decision (in which the highest court denied Roosevelt the right to fire a member of the Federal Trade Commission without cause.)

In other words, TVA directors serve subject to the pleasure of the President as distinguished from members of independent regulatory commissions such as the Federal Trade Commission.

And so, as long as there sits in the White House a President disposed to curb unlimited expansion of TVA financing or expenditures, he can do so, whether by budgetary control or, less formally, by means of "orders from the boss." On the other hand, if there sits in the White House a President disposed to encourage TVA to expand its financing and spending without stint, such TVA programs

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would be approved even if a budget had to be submitted.

FOR what it may be worth, it is quite possible that the present directors of TVA, acting under the assumption that they are expected to submit a formal budget request to the President, will do so for the coming fiscal year—the last of Eisenhower's administration. It could be that the pattern thus established would be continued rather than raise the inevitable question of breaking with it on the part of a subsequent TVA directorship.



Atomic Dumping Problem

THE Atomic Energy Commission has "no present intention" of dumping atomic wastes at any of the inshore sites, including three off Rhode Island, recently suggested as safe disposal points.

However, said A. R. Luedcke, AEC general manager, "It should be emphasized that the commission has not made a decision to use or approve the use of these inshore sites, even if the results of the studies and investigations are favorable from a safety standpoint."

He said in a letter to Senator John O. Pastore (Democrat, Rhode Island) that the atomic wastes under discussion originate in research laboratories, hospitals, universities, and other places where radioactive isotopes are used for various purposes.

The radioactive waste, he said, consists of contamination on test tubes, bottles, rubber gloves, blotting paper, and rubber tubing.

Mr. Luedcke said that in accordance with recommendations by the study group which had suggested the possible sites, the Atomic Energy Commission is entering into a co-operative arrangement with the Coast and Geodetic Survey, the U. S.

Public Health Service, and university scientists to conduct field investigations of certain of the suggested coastal areas.

More than a dozen Congressmen have objected to the proposed disposal of atomic wastes in Atlantic and Gulf coast waters. This seems certain to become a major problem in the operation of atomic power plants producing electricity as a routine public service. The protests were made before the Joint Atomic Energy Subcommittee which has been looking into the subject of radioactive waste disposal. One of the protested dump sites (recommended by the National Academy of Sciences and the National Research Council) is two miles off the tip of Florida.

HAROLD L. PRICE, director of the division of licensing for the AEC, has assured the lawmakers that none of the sites recommended will be used without further study and hearings. The final decision regarding such disposal areas, however, rests with the AEC. Until investigations and hearings are completed, radioactive wastes will continue to be dumped in waters off the continental shelf where the depth is more than 6,000 feet. It seemed apparent from the views expressed at the hearing that the problem of radioactive waste disposal is in its infancy. Public concern is already running high regarding radiation levels and the congressional protests are a reflection of this concern. When hearings are held regarding the coastal disposal areas it can be anticipated that a new flood of protests will be heard.



Railroads Seek Relief

THE railroads have laid down a 7-point program for legislative, regulatory, and economic relief which they claim they

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must have if they are to contribute adequately to the national defense. Otherwise, the railroads are in no position to cope with a national emergency, such as war mobilization, a House Armed Services subcommittee was told by some of the nation's top railroad executives last month. Government-aided competition has hit the railroads hard, Daniel P. Loomis, president of the Association of American Railroads, told the subcommittee. He pointed out that there no longer is enough reserve equipment to meet possible future mobilization demands.

Loomis conceded, moreover, that railroads are hard pressed to meet even peacetime needs of the nation's transportation to some degree. The relief proposed is designed to help the rails in their financial crisis and to put them on an equal footing with air, highway, and water carriers.

THE following seven points were offered for congressional action: (1) Deduct modernization expenses from income taxes. (2) Allow 15-year write-offs for tax purposes for money in rolling stock, twenty years for fixed plant and facilities. (3) Amend federal tax laws to encourage local and state tax relief. (4) Require commercial carriers using public transportation media to pay adequately for their use of these "tax-built and tax-free" facilities. (5) Lift restrictions preventing rails from using other modes of transport. (6) Repeal the Interstate Commerce Act's provision exempting agricultural commodities from rate regulation or extend exemption to allow competition on more even terms. (7) Complete repeal of the 10 per cent passenger fare excise tax. According to James M. Symes, president of the Pennsylvania Railroad, it would take about \$5,250,000,000 to build enough freight cars and locomotives

to handle the volume of business a war emergency would entail. Symes went on to state that right now the nation's railroads are 20 per cent short of the amount of rolling stock that would be needed.

These seven points are being pushed by the Association of American Railroads in current hearings of a House Armed Services subcommittee. As measures of their plight, the railroads point to little growth in service and much shrinkage of their facilities while the rest of the economy has boomed. In 1941 the rails had a potential reserve of 190,000 freight cars, little used in the prior decade of depression, in their fleet of 1,987,601. Their 2,020,000 cars today include little reserve capacity. Their prewar fleet of 45,200 passenger cars has shrunk to 33,000. Their 12,000 coaches could meet military requirements today, but where would civilians go when diverted from highways and airways?

OUR expectancy of rail service in wartime is well-known, even if we do not do enough to prepare them for the crisis. Fuel restrictions and other shortages during World War II shouldered onto the rails 90 per cent of domestic military freight and 97 per cent of organized military passenger travel. With fewer disruptions during the Korean assignment, the rails still carried 72 per cent of all military freight and 64 per cent of passenger volume.

Since World War II the rails have spent more than \$14 billion to streamline operations, including more efficient diesel locomotives, more carrying capacity for freight cars, and improved signal and communications systems.

The rails see the need for spending \$14 billion more in the next decade, but do not see where the money can come from.



Long-distance Rate Reductions Noted

THE Federal Communications Commission has announced a portion of the interstate telephone rate reductions that the American Telephone and Telegraph Company must make by mid-September. The FCC last month ordered AT&T to reduce its rates on certain long-distance calls by \$50 million annually.

All the ordered reductions apply only to calls over 300 miles distance. Station-to-station calls, in distances of 676 to 3,000 miles, will be reduced from 5 to 25 cents for the "initial period" (the first three minutes) regardless of the time of day or night that the call may be placed. There will be corresponding reductions in charges for time in excess of the first three minutes. The initial charge for person-to-person calls will not be reduced; however, reductions will take place on person-to-person calls which go over the initial period. All charges for time in excess of the initial period will also be reduced if the calls are during daytime hours.

In application this will mean that a station-to-station call, of three minutes' duration, placed during the daytime, between the points of New York city and Los Angeles, California, will now cost

Telephone and Telegraph

\$2.25 as compared to \$2.50 under the old rates.

The announced changes will slash gross revenues by about \$47 million. It is anticipated that rate cuts, amounting to an additional \$3 million, will be made in the near future in order to comply with the FCC order to reduce rates by \$50 million.

THE FCC waived the normal requirement that thirty days' notice be given before a rate change can be effective. This move by the FCC was made so that AT&T could file its detailed plans for the reduction less than thirty days before September 15th and still have the reduction take place on that date.

Senate Approves Equal Time Proposal

THE Senate has approved S 2424, which would exempt news programs from the "equal time" provision of the Federal Communications Act. The bill has the backing of both party leaders and the President has indicated that he would sign such a proposal. Representative Harris (Democrat, Arkansas) has introduced a somewhat more far-reaching bill (HR 7985) in the House of Representatives.

TELEPHONE AND TELEGRAPH

HR 7985 would also exempt panel shows and on-the-spot news coverage, such as political conventions. The House bill has been favorably reported from the Interstate Commerce Committee and was awaiting floor action.

When the Senate bill was debated in that chamber there were attempts to include panel shows and on-the-spot news coverage; however, these amendments to S 2424 were defeated.

In view of the coming political activities in 1960 it can be assumed that one of these two bills will be signed into law within the next few weeks.

The FCC has also laid down two new ground rules for political candidates who seek "equal time" on radio or TV. Effective on August 10th a request for equal time on a broadcasting facility must be submitted to the station owner within one week of the day that the prior political broadcast was made. Under the previous regulations a candidate could make such a request any time during the campaign. The new rules also place the burden of proving that a candidate and his political party are qualified to run for the public office in question on the candidate requesting the "equal time." Previous procedure had required the commission to determine whether a man was a bona fide candidate.

Census Bureau Reports Number of TV Sets in U. S.

THE Census Bureau has released a report which notes that 86 of every 100 households in the United States has a television set. A similar survey conducted in 1958 showed that 83 per cent of the nation had TV.

The northeast section of the nation leads the national averages with 92 per cent of the households in that area having TV. The lowest ratio occurs in the

South where only 79 per cent of the population has this relatively new form of entertainment.

Back in 1950 when the field of TV was just emerging from infancy only 12 per cent of the nation's households were equipped for television reception. It is amazing to note the growth that has taken place in the last nine years. The Census Bureau also pointed out that 8 per cent of American homes have more than one set.

Robot Switchboard Developed for Army

THE International Telephone & Telegraph Company, in co-operation with the Army Signal Research and Development Laboratory at Fort Monmouth, New Jersey, has developed a switchboard designed to bypass battle-damaged communications lines and reroute messages over the fastest circuits available.

The robot, called Digi-Com, is expected to make an important contribution to the speed with which battlefield communications can be made. In addition to being used as an aid in communications the robot is also equipped to take care of information from computers, teleprinters, tape readers, radar, and telemetering systems. A robot switchboard with such capabilities should prove to be of great value in this missile age.

Broadcasts and Disasters

THE National Association of Broadcasters has called on radio and TV stations to warn listeners to stay away from the scene of potential disasters. Harold Fallows, president of NAB, has made this request as a result of complaints that spectators at the Idlewild Airport in New York hampered precautionary safety operations that were being put into ef-

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fect because of the landing of a crippled jet airliner. The majority of these spectators had come to the scene because of spot announcements which gave notice of the crippled airliner's plight. Mr. Fallows stressed that he was not urging that any sort of censorship be invoked. He urged, however, that announcements of potential disasters should be accompanied by a request that spectators refrain from entering such areas.

FCC Commissioner to Attend International Meeting

FCC Commissioner T. A. M. Craven has been appointed by the State Department to head the U. S. delegation which will participate in the International Telecommunications Union meeting in Geneva, Switzerland. The August 17th meeting would attempt to revise the radio regulations, including the table of frequency allocations. The vice chairman of the U. S. group will be Dr. Arthur L. Lebel, assistant chief of the department's telecommunications division. It is anticipated that the international meeting will last for at least four months.

TV Teacher Training

NEW YORK UNIVERSITY, in collaboration with the Radio Corporation of America, has established a training center for teachers in educational television. The program will have two phases. The first will be devoted to the technique of studio teaching and the second will deal with the classroom use of televised presentations.

RCA has provided about \$100,000 in funds and equipment for the new center which will be administered by New York University's school of education and com-

munications art group. The program is aimed at teachers, producers-directors, educational evaluators, and school administrators. This new program at NYU points out the growing interest in all aspects of educational television.

Airport Communications Center

A STREAMLINED communications system has been installed at the San Francisco airport. The system, the first of its kind in the country, was designed by the Pacific Telephone and Telegraph Company at the request of the Federal Aviation Agency.

Radio, radar, and telephone communications facilities are co-ordinated to solve the problems created by increased aircraft speeds and the large volume of aircraft which use the San Francisco airport.

Instantaneous communication is possible between traffic control men and the radar room which is several floors away. Any controller can break into another conversation at any time should an emergency occur.

The push-button arrangement enables a radarman to turn the aircraft he has been guiding over to the tower man with the simple push of a button. Previously large headsets were worn; these have now been replaced by a hearing aid-size receiver which fits in the ear of the radar and control tower operators.

Prior to the development of this system the control men and the radar operators were in the same room. The increase in traffic, however, demanded an increase in men and the radar room had to be separated from the control center which guides the aircraft to final landing. When this move was made instantaneous telephone communications became a necessity.

TELEPHONE AND TELEGRAPH

Supersensitive Radar

HAZELINE CORPORATION of Little Neck, New York, and the Army Research and Development Laboratory have announced the development of an ultrasensitive radar set that can spot the slightest troop movement behind enemy lines.

Previous radar sets could spot a soldier at a distance of two miles—the new set has spotted a soldier walking 15 miles away. The set itself consists of a portable shelter with controls and scopes and a remotely placed antenna mounted inside a 5-foot bubble on top of a 25-foot pole. Only thirty minutes is required to set the installation up and the rig can be transported by helicopter or two-wheel trailer.

The set is so sensitive that it is claimed that a crawling man two miles away can be detected. By reading the "blips" on the screen a radar operator can distinguish a man from a woman by the characteristics of the waves on the scope.

Radioactivated Traffic Signals

THE city council of Lincoln, Nebraska, has authorized a study to control traffic signals by closed radio circuits which would eliminate the more expensive underground wiring that now must be put under city streets. Proponents of the plan claim that the city could save about 90 per cent by the use of such closed circuits.

The principle involved is much the same as that which is used to open and close garage doors from owners' cars. In addition to the cost savings it has been pointed out that such a system would enable all of the city's traffic lights to be controlled from a central headquarters. Present signals and their wiring cost about \$1,500 to \$2,500. It is estimated that a closed multiplex

radio circuit system would cost \$200 to \$250 for each unit.

Weather Network Urged

SENATOR Theodore Francis Green (Democrat, Rhode Island) has urged the government to establish a nation-wide FM radio network which would broadcast continuous storm warnings and other weather data. The Senator has urged the FCC to set aside several FM wave lengths for the suggested service. The Senator has said that manufacturers have indicated that a portable FM transistor radio could be developed which would receive such broadcasts. Manufacturers have indicated that such receivers could be produced at very low cost.

Community TV Antennas

COMMUNITY antennas serve 2.5 million television viewers who sit behind obstructions that block programs direct from the telecaster. These viewers constitute 2 per cent of the nation's total. They pay \$100 to \$175 to be wired into high community antennas and then \$2.50 to \$11 a month for service for their 700,000 sets.

The National Association of Broadcasters has asked federal regulation of the antenna operators. It wants them to pay for programs they pull out of the air and "sell" to their clients. Independent local broadcasters fight the system for a different reason: They fear being put out of business by the programs piped in from the chains.

The Federal Communications Commission has kept its hands off, feeling it can no more protect a TV station from a community antenna than it could from a local drive-in or other attraction intruding into a TV station's area.



Financial News and Comment

By OWEN ELY

Should Tax-saving Debentures Replace Preferred Stocks?

At the March meeting of the Southeastern Electric Exchange a strong argument was advanced for the gradual elimination of preferred stock in the capital structure of utilities, by substitution of debentures in new financing programs. Chairman Matt L. McWhorter of the Georgia Public Service Commission stated:

In view of the practically default-proof record of operating utility bonds in this century, a debt ratio for an electric company of between 60 and 65 per cent of the total capitalization should not be disturbing provided that this debt was subject to a reasonable amortization and such other technical provisions as would serve to reassure the bondholder. . . . Such a structure would not provide much room for preferred stocks.

Donald C. Cook, executive vice president of the American Electric Power Service Corporation, gave an address on "Financing Future Utility Expansion," in which he also advocated substitution of debentures for preferred stock. He forecast that by 1977 the assets of the electric utility industry would approximate \$176

billion. Internal cash generation would provide about 42 per cent of requirements for expansion over the next two decades, leaving 58 per cent or \$77 billion to be raised externally. In the past 12-15 per cent of utility capital structure has consisted of preferred stock. In 1946 twenty-four utilities were able to issue some \$311 million of preferred stock at an average dividend rate of only 3.65 per cent. But in 1958 twenty-one issues totaling about \$250 million were sold at dividend rates of 4.64 per cent to 5.64 per cent, or an average of 5.14 per cent. Mr. Cook stated:

It has become increasingly clear, that the market for utility preferred stocks has gone into a substantial and perhaps permanent decline. Gone are the days of the low-rate preferred readily received by a waiting market. Here instead is the high dividend rate and the

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FINANCIAL NEWS AND COMMENT

indifferent market appetite, and, in some cases, sinking funds designed to obviate the disadvantage of not having a maturity date have made their appearance.

WHAT would be a logical substitute for future preferred stock financing? First mortgage bonds should not be used, since both indenture requirements and sound financial policy with respect to maintaining bond ratings, etc., would be against it. If additional common stock were sold the resulting cost of capital would be increased, and per share earnings retarded; price-earnings ratios might then be adversely affected, with a further increase in costs.

The best solution, according to Mr. Cook, would be to substitute unsecured debentures for a substantial portion of the preferred stock, also increasing the amount of common slightly. Thus the composition of the financing program would change as follows:

	Millions	
	Old	New
First Mortgage Bonds	\$ 55	\$ 55
Unsecured Debentures	—	10
Preferred Stock	12	—
Common Stock Equity	33	35
Total	\$100	\$100

Since interest is a prior deduction before income taxes, about 52 per cent of the interest on the debentures would be saved, compared with no saving if preferred stock were issued.

OF course these figures apply only to the new financing program covering two or three years; the capital structure would continue to include the preferred stock issued in prior years, but the ratio of preferred to total capital would gradually decline over future years while the proportion of debentures would increase.

At some point it might also prove feasible to redeem existing preferred stock and substitute debentures. Eventually, the objective might be a capital structure of 55 per cent mortgage bonds, 10 per cent unsecured debentures, and 35 per cent common equity.

Regarding the attitude of regulatory bodies, he pointed out that the consumer is the "principal ward" of the state commissions and at least on a par with the investor at the federal level. It would be to both the consumer's and investor's interest that the company obtain the lowest possible cost of new money consistent with the financial stability of the enterprise. Hence, the commissions should "have the vision and the wisdom to approve—indeed they should urge it."

TVA Self-financing Bill Signed—Might Affect Kentucky Utilities

PRESIDENT Eisenhower signed the TVA bill August 6th but stated that one feature of the bill was "wholly unacceptable." (For further analysis of the new law see page 350.) This section provides that, when TVA plans a project, the President shall submit the plan to Congress along with his recommendations—following which Congress would have ninety days to modify the plan. However, Congress had pledged that it would immediately pass a new bill deleting the objectionable provision. This very unusual procedure was apparently due to technical difficulties in the way of revising the original bill after it had been sent to the President; a new act was the easiest way out. The Senate has already voted the new bill and the House soon after followed suit. Thus, TVA will be enabled to issue up to \$750 million bonds to construct new steam plants without consulting Congress.

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While copies of the act are not available at this writing, it is understood that it contains a provision limiting TVA expansion to five miles beyond its present borders, and if TVA should take full advantage of this it could increase its service area by 2,000 square miles; also Paducah, Glasgow, and a few other towns in Kentucky are included, as possible buyers of TVA power if they should go to municipal ownership.

It is understood that Southern Company—which had been much concerned earlier because of unfavorable provisions in early drafts of the bill—will not lose any important towns to TVA, as the area involved is virtually all rural in character; hence the effect on revenues should be negligible considering the large size of the system. Kentucky Utilities Company

might also be affected over a period of years, but any revenue losses would be in the slowest-growing portion of its territory.

In general, therefore, the bill as finally enacted is considered favorable in so far as it removes, for the time being at least, the threat of much wider geographical expansion by TVA through the offering to municipalities of relatively cheap tax-free power in substitution for private power burdened by taxes.

Telling Stockholders about The Tax Bite

THE practice of giving a breakdown of total tax payments in the annual report to stockholders unfortunately is followed by only a few utilities. Consolidated



JULY UTILITY FINANCING PUBLIC OFFERINGS OF ELECTRIC AND GAS UTILITY SECURITIES

Amount Date (Mill.)	Description	Price To Public	Under- writing Spread	Offer- ing Yield	Aver. Yield For Securities Of Similar Quality	Moody Rating	Success Of Offer- ing	
<i>Bonds</i>								
7/9 \$25	Long Island Lighting 1st (s. f.) 5½ 1989	102.29	.80C	5.10%	4.91%	A	a	
7/10 6	Union Lt. Heat & Power 1st 5s 1989	101.09	.64C	4.93	4.62	Aa	b	
7/15 8	Jersey Central P. & L. 1st (s. f.) 5½ 1989	102.29	.71C	5.10	4.86	A	a	
7/21 50	Tenn. Gas Transmission 1st (s. f.) 5½ 1979	101.25	1.00N	5.15	4.87	A	a	
7/28 20	Transcontinental Gas Pipe Line 1st (s. f.) 5½ 1980	99.69	1.00N	5.15	5.04	Baa	a	
7/30 8	Pub. Serv. of N. H. 1st 5½ 1989	101.93	.82C	5.00	4.87	A	b	
<i>Preferred Stock</i>								
7/28 11	Transcontinental Gas Pipe Line 5.60 (s. f.)	100.00	2.75N	5.60			a	
<i>Common Stocks—Offered to Stockholders</i>								
7/23 21	Northern States Power	22.00	.07C	5.00	6.17			
7/30 1	Brockton-Taunton Gas	17.00	N	5.88	7.69			
<i>Common Stocks—Offered to Public</i>								
7/23 7	Public Service of N. H.	18.63	.74N	5.37	7.19		a	

C—Competitive. N—Negotiated. a—Reported well received. b—Reported fairly well received.

Source, Irving Trust Company

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Edison and Pacific Gas and Electric, the two largest electric-gas utilities, give a complete tabulation of taxes paid. Consolidated Edison in its 1958 report listed seven local taxes, four state, and five federal (including miscellaneous in each case as only one item), or a total of 16. Pacific Gas and Electric listed three local, at least four state, five federal, and one small Canadian, making a total of 13.

The total tax burden of the two companies was almost the same—about \$137 million. As might be expected because of its concentration in New York city, Consolidated Edison paid \$92 million in local and state taxes and \$45 million to the federal government. Pacific Gas paid only \$65 million in local and state imposts, but almost \$69 million to the federal government. However, the latter included \$9 million for normalization of tax savings resulting from accelerated amortization, and eliminating the latter item (as Con Ed did not include a similar item of \$3 million) we find that each company paid out 24 per cent of revenues for taxes—compared with 23 per cent for the U. S. average.

NORTHERN STATES POWER COMPANY has recently issued an interesting four-page folder "NSP & Taxes—Facts Every Investor Should Know," from which we summarize as follows: The company's tax bill last year was nearly \$39 million or 25 per cent of the revenue dollar—as compared with 2 per cent for TVA and 3 per cent for REA. Making the comparison in another way, REA revenues are three-and-a-half times as large as NSP's yet the co-ops paid only 40 per cent as much as NSP in taxes. TVA's revenues are about one-and-a-half times those of NSP, but it paid only 14 per cent as much in taxes. NSP's taxes per kilowatt-hour sold are higher than the

rate at which TVA sells wholesale power and higher than the rate at which the U. S. Bureau of Reclamation sells wholesale power.

Other salient points brought out in the report were as follows:

NSP taxes approximated \$45 per customer in 1958.

Government, without any investment, got more than twice as much out of NSP as the common shareholders.

The government's take exceeded the total operating payroll of the company, and was 2.3 times the cost of all fuel for generating stations.



Power Costs Improving In New England

THE Electric Council of New England, representing 50 investor-owned class A and B electric utilities, has issued a 35-page statistical bulletin covering the combined statistics for these companies, a number of which are subsidiaries of holding companies.

Statistics are grouped under "Electric Power Supply," "Utilization of Electricity," and "Finances and Operations." Power supply covers capacity, peak load, and character of generation. (Hydro was about one-fifth of the total, gaining 23 per cent in 1958 over 1957.) The customary statistics for customers, energy sales, and revenues are presented. Total generating capability increased 9 per cent over 1957 and peak load (despite the recession) was up nearly 12 per cent; the reserve margin was 22 per cent.

In New England the average kilowatt-hour used per residential customer was 2,621 in 1958, a gain of 6 per cent over 1957 but substantially below the national average of 3,366. As a result of high fuel costs rates in New England are relatively

PUBLIC UTILITIES FORTNIGHTLY

high—3.3 cents per residential and rural kilowatt-hour compared with 2.5 cents for the U. S.; and 2.6 cents for all customers compared with 1.7 cents for the U. S. The overall rate is 54 per cent above the U. S. average, as compared with the 74 per cent greater fuel cost. The latter reflects two factors—fuel costs last year were 59 per cent more per million Btu, and it also took 11 per cent more Btu to generate one kilowatt-hour. Comparing New England with the lowest-cost area in the U. S., overall cost per kilowatt-hour for fuel was 3.6 times as much as in the West South Central area. Fuel used in New England

last year was about 63 per cent coal, 32 per cent oil, and 5 per cent gas.

HOWEVER, New England has made rapid progress in efficiency since 1948—currently 11,981 Btu's are required to generate one kilowatt-hour compared with 17,792 in 1948, an improvement of about one-third. The net increase in the price of fuel was only 4 per cent so that fuel cost per kilowatt-hour dropped from 6.9 mills to 4.8, a decrease of 30 per cent. However, nearly one-third of this gain occurred in 1958, mainly as the result of lower fuel costs and increased hydro.



CALENDAR OF PROPOSED UTILITY OFFERINGS AUGUST 25TH TO DECEMBER 31ST

Date of Bidding Or Sale	Approx. Amount (Millions)	Bonds	Method Of Offering	Moody Rating*
Aug. 25	\$65	Pacific Gas & Electric	C	Aa
Aug.-Sept.	7	Worcester County Electric	C	Aa
Aug.-Sept.	5	Arkansas P. & L.	—	A
Sept.	15	Boston Edison	CCC	Aaa
Sept. 17	18	Georgia Power	CCC	A
Sept. 21	45	New England Power	CCC	Aa
Sept. 29	30	Southern California Gas	CCC	Aa
Oct.	8	Western Mass. Companies	CCC	Aa
Oct. 8	30	Columbia Gas System	CCC	A
Oct. 14	50	Philadelphia Electric	CCC	Aa
Oct.-Dec.	25	Northern Natural Gas	N	A
Oct.-Dec.	12	Wisconsin Public Service	CCC	Aa
Oct.-Dec.	20	Puget Sound P. & L.	CCC	A
Oct.-Dec.	8	So. Carolina E. & G.	—	Baa
Oct.-Dec.	6	Tucson G. E. L. & P.	CCC	—
Nov.	15	Gulf States Utilities	CCC	Aa
Dec. 1	50	Consolidated Edison	CCC	Aa
		<i>Convertible Debentures</i>		
Aug.-Sept.	23	American & Foreign Power Conv. Jr. Debs. 1982	N	B
Aug. 28	11	Pacific Power & Light 44% Conv. Deb. 1974	C	Baa**
		<i>Units (Debentures and Common Stock)</i>		
Aug.-Sept.	50?	Transwestern Pipe Line	—	—
		<i>Preferred Stock</i>		
Sept. 2	3	Community Public Service	C	—
Oct.-Dec.	15	Northern Natural Gas	N	—
Oct.-Dec.	12	Arizona Public Service	N	—
		<i>Common Stock—Subscription Offerings</i>		
Sept. 10	30	Union Electric	C	—
Oct.	5	Hawaiian Telephone	—	—
		<i>Common Stock—Offered to Public</i>		
Aug.-Sept.	—	Middle South Utilities	—	—
Oct. 27	22	Central & South West	C	—
Oct.-Dec.	5	Central Illinois Public Service	—	—

C—Competitive. N—Negotiated. *Preliminary rating, or a rating for similar issue of same company.

**Competitive bidding has already taken place. The initial offering is to common stockholders of record August 5th on the basis of \$100 debenture for each 40 shares, rights expiring August 27th.

FINANCIAL NEWS AND COMMENT

During the ten-year period the industry as a whole has decreased the heat rate from 15,738 Btu to 11,085, an improvement of about 30 per cent or slightly less than the gain in New England. Possibly better regulatory treatment of the New England utilities would encourage them to install more modern equipment and catch up with the U. S. average in efficiency.

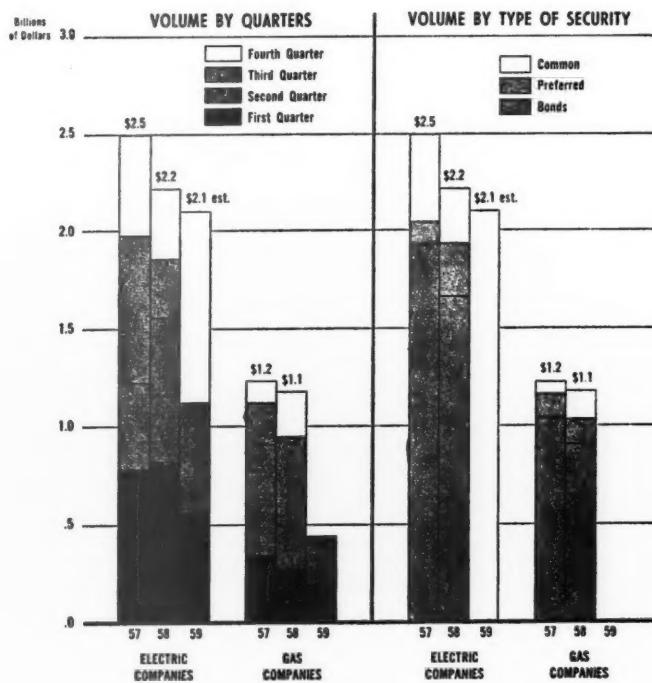
New England utilities made a good earnings showing in 1958, net income gaining 9 per cent over 1957, due largely perhaps to the plentiful supply of hydro.

Utility plant less reserves increased over 6 per cent and capitalization 7 per cent. Average capital structure was 46 per cent debt, 11 per cent preferred stock, and 43 per cent common stock equity—the latter being well above the national average.

THE bulletin also makes some projections. The anticipated rate of load growth over the next four years is 6 per cent so that in 1962 total load should be almost three times as great as that of 1945. The companies' construction program is scheduled to provide a 19 per cent



Summary of Financing
by
Large Electric & Gas Companies



Source—Irving Trust Company—Amounts include new money financings by companies with assets over \$35,000,000

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reserve in 1962 compared with 22 per cent in 1958, 25 per cent in 1957, and only 7 per cent in 1955. Annual load factor is estimated at about 55 per cent for 1959 and the three following years.

The bulletin points out that interconnection of New England utilities has reduced the cost and increased the reliability of service, as well as permitting construction of larger and more efficient generating units. New England is linked by an electrical network of transmission and distribution facilities and these lines are connected with utility systems in New York state and Canada, including the new St. Lawrence power project.

New England is relatively free of public power. Eighty-four per cent of 1958 output was generated by investor-owned utilities, 2 per cent by municipal and other public power agencies, 12 per cent by manufacturing and other nonutility companies, and about one per cent was imported.

HYDRO power, which furnished 22 per cent of requirements last year, has

now been quite fully developed in New England. A few years ago federal agencies were active in attempting to map out new development projects but this program has apparently now been pretty well abandoned. As the report states:

Water is stored to the extent possible in a pond immediately above hydro plants. However, narrow built-up New England river valleys rarely permit any great amount of storage at this point. Storage reservoirs located upstream, therefore, are desirable. Because of the tremendous space requirements, sites for storage of water in significant quantities are not plentiful for this use and must compete with the alternative value of the land for roads, farms, industries, and towns already located in the river valleys. Hydro generation has been an important part of the power supply in New England, but there are relatively few remaining undeveloped sites that can provide competitive economic power.



FINANCIAL DATA ON ELECTRIC UTILITY STOCKS

Annual Rev., (Mill.)		8/5/59 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earns.	% In- crease 1953-58	Aver. Incr. In Sh. Earns.	Price- Earn. Ratio	Div. Pay- out	Approx. Common Stock Equity
\$297	S	American Elec. Power	.49	\$1.68	3.4%	\$2.35Je	5%	9%	20.9	71% 33%
57	O	Arizona Pub. Serv.	.39	1.20	3.1	*1.80Ma	—	11	*21.6	67 28
12	O	Arkansas Mo. Power	.23	1.00m	4.3	1.48Ma	4	2	15.5	67 32
36	S	Atlantic City Elec.	.49	1.50	3.1	2.02My	10	10	24.3	74 30
153	S	Baltimore Gas & Elec.	.50	1.80	3.6	2.75Je	25	8	18.2	65 41
7	O	Bangor Hydro-Elec.	.40	2.00	5.0	2.90Je	40	5	13.8	69 33
6	O	Black Hills P. & L.	.33	1.44	4.4	2.25Ap	9	4	14.7	64 32
109	S	Boston Edison	.61	2.80	4.6	3.55De	14	4	17.2	79 43
27	A	Calif. Elec. Power	.20	.80	4.0	*1.17Ma	26	6	*17.1	68 35
23	O	Calif. Oreg. Power	.38	1.60	4.2	1.98De	27	3	19.2	81 37
9	O	Calif. Pac. Util.	.35	1.60	4.6	2.43My**	7	20	14.4	66 31
70	S	Carolina P. & L.	.36	1.32	3.7	2.04Je	4	7	17.6	65 42
32	S	Cent. Hudson G. & E.	.19	.80	4.2	*1.29Ma	2	6	*14.7	62 36
23	O	Cent. Ill. E. & G.	.34	1.44	4.2	2.06My	—	4	16.5	70 43
39	S	Cent. Ill. Light	.33	1.52	4.6	2.17Je	7	9	15.2	70 33
55	S	Cent. Ill. P. S.	.43	1.76	4.1	2.63Je	3	16	16.3	67 35
17	O	Cent. Louisiana Elec.	.47	1.80	3.8	2.20Ma	D2	8	21.4	82 30
39	O	Cent. Maine Power	.25	1.40	5.6	*1.55Je	D16	3	*16.1	90 33
147	S	Cent. & South West	.63	1.80	2.9	2.70Je	10	10	23.3	67 38
12	O	Cent. Vermont P. S.	.20	1.08	5.4	*1.38Ma	27	11	*14.5	78 35

FINANCIAL NEWS AND COMMENT

<i>Annual Rev. (Mill.)</i>	<i>(Continued)</i>	<i>8/5/59 Price About</i>	<i>Divi- idend Rate</i>	<i>Approx. Yield</i>	<i>Recent Share Earns.</i>	<i>% In- crease 1953-58</i>	<i>Aver. Incr. In Sh. Earns.</i>	<i>Price- Earn. Ratio</i>	<i>Div. Pay- out</i>	<i>Approx. Common Stock Equity</i>
128 S	Cincinnati G. & E.	34	1.50	4.4	1.84Ma	D8	4	18.5	82	43
8 O	Citizens Util. "B"†	14	.53	3.8	.64De	6	6	21.9	82	48
119 S	Cleve. Elec. Illum.	50	1.80	3.6	2.65Ma	1	6	18.9	68	45
6 O	Colo. Cent. Power	25	.75	3.0	1.03Ma	15	6	24.3	73	39
46 S	Columbus & S. O. E.	37	1.60	4.3	2.03My	D14	—	18.2	79	30
405 S	Commonwealth Ed.	60	2.00h	5.3h	3.62Je	25	8	16.6	55	43
14 A	Community Pub. Serv.	23	1.00	4.3	1.37Je	3	5	16.8	73	46
78 O	Conn. Lt. & Pr.	24	1.10	4.6	*1.32Je	—	5	*18.2	83	39
582 S	Consol. Edison	65	2.80	4.3	*3.90Je	7	5	*16.7	70	38
228 S	Consumers Power	57	2.40	4.2	3.41Je	5	—	16.7	70	39
83 S	Dayton P. & L.	52	2.40	4.6	3.28Ma	D1	4	15.9	73	40
50 S	Delaware P. & L.	67	2.10	3.1	3.10Je	10	11	21.6	68	33
246 S	Detroit Edison	44	2.00	4.5	2.33Je	D3	3	19.3	86	47
145 A	Duke Power	47	1.40i	3.0	2.10Ma	8	11	22.4	67	46
99 S	Duquesne Light	25	1.10	4.4	*1.39Je	D3	5	*18.0	79	34
33 O	East. Util. Assoc.	42	2.20	5.2	2.89My	11	2	14.5	76	34
3 O	Edison Sault Electric	19	.90	4.7	1.31My	12	12	14.5	69	34
16 O	El Paso Elec.	35	1.16	3.3	1.60My	11	10	21.9	73	37
12 S	Empire Dist. Elec.	25	1.20	4.8	1.67Ma	17	3	15.0	72	33
57 S	Florida Power Corp.	29	.72	2.5	1.16Ma	7	18	25.0	62	35
145 S	Florida P. & L.	53	.88	1.7	1.86Je	14	26	28.5	47	42
4 O	Florida Pub. Utils.	22	.72	3.3	1.10Ma	D13	3	20.0	65	31
213 S	General Pub. Util.	25	1.12	4.5	*1.58Ma	4	7	*15.8	71	40
7 O	Green Mt. Power	20	1.00	5.0	1.44Ma	22	12	13.9	69	37
70 S	Gulf States Util.	31	.90	2.9	1.26Je	14	7	24.6	71	37
51 A	Hartford Electric	68	3.00	4.4	*3.61Ma	D3	5	*18.8	83	40
25 O	Hawaiian Elec.	54	2.50	4.7	3.23Je**	15	6	16.6	77	34
94 S	Houston L. & P.	70	1.60	2.3	2.90Je	2	9	24.1	55	44
30 S	Idaho Power	47	1.70	3.6	2.40Ap	NC	10	19.6	70	33
92 S	Illinois Power	38	1.50	3.9	2.39Je	18	10	15.1	63	37
49 S	Indianapolis P. & L.	40	1.50	3.8	2.31Je	8	8	17.3	65	35
31 S	Interstate Power	19	.85	4.5	1.17Je	6	4	16.2	73	32
37 S	Iowa Elec. L. & P.	35	1.60	4.6	2.16Je	2	6	16.2	74	40
44 S	Iowa-Ill. G. & E.	37	1.80c	4.9	2.44My	D2	—	15.2	74	43
41 S	Iowa P. & L.	36	1.60	4.4	2.13Ma	5	1	16.9	75	34
35 O	Iowa Pub. Ser.	18	.80	4.4	1.23Je	7	8	13.8	65	32
15 O	Iowa Southern Util.	30	1.36	4.5	2.14Je	9	4	14.0	64	40
61 S	Kansas City P. & L.	50	2.20	4.4	3.01My	—	5	16.6	73	38
33 S	Kansas G. & E.	45	1.48	3.3	2.65Je	9	9	17.0	56	31
50 S	Kansas P. & L.	30	1.36	4.5	2.17Je	10	12	13.8	63	34
43 O	Kentucky Util.	37	1.52	4.1	2.62Je	19	8	14.1	58	40
7 O	Lake Superior D. P.	25	1.20	4.8	1.65Je	2	2	15.2	73	41
122 S	Long Island Ltg.	35	1.30	3.7	*1.97Je	2	8	*17.8	66	34
61 S	Louisville G. & E.	40	1.30	3.3	2.24Ma	7	7	17.9	58	42
11 O	Madison G. & E.	55	1.80	3.3	3.85Je	8	2	14.3	47	45
5 A	Maine Pub. Serv.	23	1.20	5.2	1.46Je	3	7	15.8	82	40
7 O	Michigan G. & E.	74	1.70j	5.3	5.34Ma	22	10	13.9	32	37
183 S	Middle South Util.	49	1.90	3.9	2.62Je	1	5	18.7	73	39
30 S	Minn. P. & L.	36	1.60	4.4	2.33Je	D6	3	15.4	69	33
3 O	Miss. Valley P. S.	30	1.40	4.7	2.30Je	11	5	13.0	61	33
15 S	Missouri P. S.	19	.72f	5.8	.87Je	D16	3	21.9	83	30
7 O	Missouri Util.	28	1.36	4.9	1.62Je	D4	—	17.3	84	30
44 S	Montana Power	25	.80	3.2	*1.43Je	12	10	*17.5	56	39
167 S	New England Elec.	20	1.00	5.0	1.31Ma	6	2	15.3	76	36
46 O	New England G. & E.	23	1.10	4.8	1.72Je	13	7	13.4	64	41
98 S	N. Y. State E. & G.	58	2.30	4.0	*4.07Je	17	11	*14.2	57	35
264 S	Niagara Mohawk Pr.	37	1.80	4.9	*2.07Je	D1	—	*17.9	87	28
92 O	Northern Ind. F. S.	53	2.00	3.8	2.95Je	D3	3	18.0	68	36
155 S	Northern Sts. Power	23	1.10	4.8	1.42Je	11	3	16.2	77	36
11 O	Northwestern P. S.	22	1.10	5.0	1.51Ma	2	2	14.6	73	32
138 S	Ohio Edison	61	2.64	4.3	3.78Je	6	3	16.1	70	40
54 S	Oklahoma G. & E.	31	1.00	3.2	1.49Je	7	10	20.8	67	31
26 O	Orange & Rockland Utils. ...	24	.90	3.8	*1.29De**	3	22	*18.6	70	27
17 O	Otter Tail Power	34	1.60	4.7	2.40My	8	1	14.2	67	30

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535 S	Pacific G. & E.	65	2.60	4.0	3.72Ma	4	7	17.5	70	34
52 O	Pacific P. & L.	39	1.60	4.1	*2.40De	17	9	*16.3	67	30
131 S	Penn Power & Light	28	1.25	4.5	1.65My	6	2	17.0	76	34
248 S	Phila. Elec.	52	2.24	4.3	2.80Je	4	4	18.6	80	40
36 O	Portland Gen. Elec.	27	1.20	4.4	1.69Je	D7	8	16.0	71	37
72 S	Potomac Elec. Pr.	26	1.20	4.6	*1.65Ma	7	7	*15.8	73	37
97 S	Pub. Serv. of Colo.	50	1.90k	3.8	2.61Ma	D3	5	19.2	73	33
344 S	Pub. Serv. E. & G.	40	1.80	4.5	2.42Je	8	4	16.5	74	34
81 S	Pub. Serv. of Ind.	43	2.10	4.9	2.85Je	3	5	15.1	74	33
32 O	Pub. Serv. of N. H.	19	1.00	5.3	1.34My	5	7	14.2	75	36
15 O	Pub. Serv. of N. M.	31	.90g	2.9	1.51Ma	22	11	20.5	60	34
27 S	Puget Sound P. & L.	35	1.44	4.1	2.02Ma	10	12	17.3	71	50
65 S	Rochester G. & E.	44	1.80	4.1	*3.21Je	24	3	*13.7	56	37
9 S	St. Joseph L. & P.	34	1.50	4.4	2.05Je	4	2	16.6	73	34
59 S	San Diego G. & E.	27	1.04	3.9	1.64My	24	3	16.5	63	35
11 O	Savannah E. & P.	28	1.00	3.6	1.28My	D15	12	21.8	78	32
11 O	Sierra Pacific Pr.	33	1.40	4.2	2.10My	13	10	15.7	67	31
256 S	So. Calif. Edison	59	2.60	4.4	3.61Je	7	9	16.3	72	36
50 S	So. Carolina E. & G.	36	1.30	3.6	1.77My	3	13	20.3	73	33
7 O	Southern Colo. Pr.	20	.90	4.5	1.46My	3	4	13.7	62	36
272 S	Southern Co.	40	1.30	3.3	1.83Je	6	9	21.9	71	34
20 S	So. Indiana G. & E.	34	1.60	4.7	2.43Je	D1	3	14.0	66	35
8 O	So. Nevada Power	26	1.10	4.2	1.69Je	32	7	15.4	65	46
3 O	Southwestern E. S.	17	.64	3.8	.98Je	6	x6	17.3	65	27
44 S	Southwestern P. S.	44	1.56	3.5	1.94Je	11	4	22.7	80	36
32 A	Tampa Elec.	50	1.20	2.4	1.79Je	7	10	27.9	67	33
168 S	Texas Utils.	73	1.76	2.4	2.84Je	9	12	25.7	62	41
42 S	Toledo Edison	16	.70	4.4	1.17Je	14	4	13.7	60	31
17 O	Tucson G. E. L. & P.	28	.76	2.7	1.08Ma	D8	12	25.9	70	47
132 S	Union Elec. of Mo.	34	1.52	4.5	*1.77De	5	6	*19.2	86	32
36 O	United Illum.	29	1.38	4.4	1.62Je	5	3	17.9	85	50
6 O	Upper Peninsula Pr.	32	1.60	5.0	1.69Ma	5	2	18.9	95	32
45 S	Utah Power & Light	35	1.20	3.4	1.83Je	3	7	19.1	66	44
140 S	Virginia E. & P.	39	1.10	2.8	1.60Je	D1	17	24.4	69	40
31 S	Wash. Water Pr.	45	2.00	4.4	*2.72Je	12	6	*16.5	74	32
142 S	West Penn Elec.	36	1.60	4.4	2.33My	5	6	15.5	69	32
77 O	West Penn Power	60	2.40	4.0	3.32Ma	D1	6	18.1	72	38
12 O	Western Lt. & Tel.	42	2.00	4.8	3.05Je	10	2	13.8	66	41
28 O	Western Mass. Cos.	27	1.20	4.4	1.63Ap	2	13	16.6	74	50
119 S	Wisc. Elec. Pr. (Cons.) ...	37	1.60	4.3	2.37Ma	2	1	15.6	68	40
44 O	Wisconsin P. & L.	34	1.48	4.4	2.15Ma	5	4	15.8	69	37
43 S	Wisconsin P. S.	27	1.20	4.4	1.85Ap	9	3	14.6	65	37
Averages				4.1%		7%	7%	17.6%	70%	
<i>Foreign Companies</i>										
215 S	Amer. & Foreign Power ..	15	\$1.00	6.7%	\$1.92Ma	D9%	0	7.8	52%	44%
129 A	Brazilian Traction	5½	.25	4.5	.64De	D58	—	8.6	39	76
83 A	British Col. Pr.	39	1.40	3.6	1.95De	D16	7%	20.0	72	28
20 O	Calgary Power	96	2.00	2.1	4.46De	11	18	21.5	45	31
19 A	Gatineau Power	40	1.50	3.8	2.55De	7	9	15.7	59	35
49 O	Mexican L. & P.	15	1.00b	6.7	1.66De	D16	—	9.0	60	41
15 A	Quebec Power	39	1.60	4.1	2.34De	8	10	16.9	68	53
71 A	Shawinigan Water & Pr. ...	33	.68	2.1	1.60De	5	23	20.6	43	38

*Deferred taxes resulting from liberalized depreciation are not normalized. If they had been normalized the price-earnings ratio would be higher. **On average shares. †Stock dividends (only) are paid on the "A" shares. x—Average increase in share earnings 1952-57. D—Decrease. NC—Not comparable. A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. b—Also 5 per cent stock dividend May 1, 1959. c—Also 5 per cent stock dividend June 10, 1959. f—Also stock dividend of one-half per cent quarterly. g—Also 5 per cent stock dividend July 1, 1958. h—Also 2 per cent stock dividend November 20, 1958, included in the yield. i—Also 15 per cent stock dividend January 29, 1959. j—Also 3 per cent stock dividend (paid each year end) included in the yield. k—Also 5 per cent stock dividend payable February 20, 1959. m—Also 5 per cent stock dividend June 15, 1959.



What Others Think

British Nationalized Utilities Run in the Red

BRITAIN's nationalized industries reported on August 1st a combined loss of more than \$1.5 billion in their first ten years, according to a London dispatch to the Chicago Tribune Press Service of that date. The only even relatively bright financial spots were the telephone system and electric power plants.

Power production more than doubled during the first governmental decade, but output is still only 85 billion kilowatt-hours, compared with 715 billion kilowatt-hours in the United States.

The number of telephones increased by about 50 per cent to a little over 7 million, compared to a ten-year gain in the United States from 38 million to 63 million.

Altogether, the government has invested about \$11 billion improving and expanding its industries, allotting \$5 billion for new power stations, \$2 billion each for railroads and coal mines, about \$1.5 billion for communications, and the rest for the two airlines.

After ten years, the production of coal, Britain's only native fuel, is falling, and railroads, just now getting their first diesel engines, are losing freight. The airlines, however, are doing above five times their 1948 business, hauling 3,250,000

passengers, an equivalent of a million times around the earth.

THE government industries have doubled their total revenue to just under \$6 billion. Coal sales bring in more than \$2.5 billion. Power plants and railroads each take in almost \$1.5 billion. Pennies in the telephone slot add up to about \$500 million and the two airlines each take up about \$150 million annually.

For the Treasury, however, these sums are dwarfed by the \$15 billion collected in taxes annually.

The phone system has earned steady profits of about \$15 million a year but about half has been used to meet losses from the telegraph system. Power plant profits have run up to \$50 million a year. But the coal mines have been steady losers and now the railroads, after running in the black up to 1955, are \$20 million in the red in one year's operations.

At a time when the working population increased from 20 million to almost 23 million, the government industries cut their combined payrolls by about 60,000 to under 1.5 million. The railroads have dropped about 100,000 men but the power plants have taken on an extra 38,000.

—F. X. W.

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The Anatomy of Attrition

"THE Anatomy of Attrition" by P. M. Schuchart, director of the engineering department of Florida Railroad and Public Utilities Commission, is an interesting examination of the methods used to determine future utility rates when attrition must be dealt with. Mr. Schuchart's article appeared in *Telephone Engineering and Management*, issue of May 15th.

Mr. Schuchart believes that the definition for "attrition" found in the "*Webster's International Dictionary*"—"the wearing down, as of resources, by continual slight impairments"—will have to be amended to read, "the wearing down, as of return, by continual—and not so slight—inflation." The author contends that such a definition would be well understood by persons in the business field and by public utility managers in particular. Inflation-generated cost increases have exerted a downward pressure which extends to all business. The level of return can only be maintained by increasing prices (assuming that everything has been done to offset the trend—such as increased efficiency). Unregulated business can make such adjustments at will. The utilities, on the other hand, must appeal to the regulatory body having jurisdiction and Mr. Schuchart notes that this opens a "Pandora's box of difficulties." Attrition occurs in the return allowance for public utilities in a different manner than in the profit of other businesses. The problems are large but they are not insurmountable. Mr. Schuchart states that in order to understand attrition it is essential to understand more than the primary cause—it is essential to know the "how" of attrition.

THE rate of return in any business is a per cent. It is applied, by multipli-

cation to the permanent assets devoted to those operations — the rate base in utility vocabulary—to determine the dollar amount of earnings from any year's operations which the owners of the property will be permitted to retain as profit, for the use of such property in the public service. Therefore, there are two avenues of attack on rate of return, directly through earnings and less directly through the base. Attrition can work along either line.

When operating expenses increase earnings go down unless prices are jacked up. The impact on the rate of return at each cost increase is felt immediately and in full. Direct attrition, therefore, is the immediate and full impact on return resulting from increased operating expenses.

Mr. Schuchart points out that "indirect attrition" is generated by inflationary changes in assets. Thus, a business adds productive units of cost higher than the average cost of existing productive units. If earnings from the new units are the same as earnings on existing units the rate of return goes down. Mr. Schuchart comments:

Moreover, earnings from the new unit will almost certainly be *less* than the average per existing unit, and the impact on rate of return will thereby be compounded. There are accompanying expense increases which tend to bring this about. Because of the higher dollar cost of the new unit, depreciation expense will be greater than the average per existing unit. The same may also hold for ad valorem tax expense.

INDUSTRY has attempted to offset this trend by making the new productive units more efficient. However, the steady advance of inflation has been too much

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even for our research and American know-how. Mr. Schuchart notes that regulated businesses are "low turnover"—several years' receipts are required to equal the cost of permanent assets used in producing the product offered to the public. Unregulated businesses, on the other hand, have "high turnovers." Because of this difference in "turnover" price increases in public utilities need to be greater to offset attrition caused by expansion and replacement.

REGLATION can and should cope in advance with indirect attrition, Mr. Schuchart believes. Expansion will continue to exert a depressing effect on the rate of return, and given adequate evidence of expansion plans commissions can evaluate future indirect attrition and make corresponding rate modifications. However, Mr. Schuchart states:

. . . All too often, however, this evidence is either entirely lacking or is so poorly presented that the commission cannot legally justify providing in advance for indirect attrition. Consequently, not only does the utility fail to earn the return which the commission deems proper, but the commission itself is burdened with having to process rate cases at unnecessarily frequent intervals. A crowded docket brings on either hurried regulation or increasing regulatory lag. Finally there is the adverse

public reaction to close interval rate increases.

If the inflation spiral comes to a halt there will be little further direct attrition of the rate of return. Should inflation continue direct attrition evaluations will have to be made on the basis of past experience.

As to various methods of rate base determination, Mr. Schuchart did not advocate the use of any of the three basic methods, or any combination of them, as "the best" means of coping with attrition.

He observed that technology has moved forward while the process of rate making has changed but little over the years. He calls for basic research aimed at solving the long-range problems of attrition.

Although Mr. Schuchart's article is not concerned with the public relations aspects of rate making, he does observe that the public understands rate adjustments due to direct attrition. However, the public does not understand the endless series of increases because "business is growing." No matter how technical such matters may become, the rate makers and the utilities must never lose sight of the fact that the public must understand why such rate adjustments are made — in the end result they hit John Q. Public in his pocketbook and all technical, judicial, and economic considerations aside, he notes and questions this.

—C. M. B.

Missile Guidance Development

IN a reprint from the *Bell Laboratories Record*, June, 1959, E. P. Felch, director of military systems development for the Bell Telephone Laboratories, outlines the background and achievements in "missile guidance."

Mr. Felch notes that an increasing amount of effort at the Bell Laboratories is being devoted to the study, design, and development of missile systems. This increase in activity is in part due to the firing of the first Russian Sputnik and

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the resulting clamor for added attention to the United States' missile program—both in the field of scientific research and in weapons development.

The first work on guided missiles began at Bell after World War II and was devoted to methods of counterattack against manned bombers. The result was the 1951 test at the White Sands Proving Ground. This missile is now known as the Nike-Ajax ground-to-air defense system. Most American cities are now protected by the Nike-Ajax system or with the more recent and longer-range Nike-Hercules. Now under development is the Nike-Zeus which is designed to protect against ballistic missiles.

BASED on the Nike development background, the Bell Laboratories has for some time been interested in long-range ballistic missiles. The term "ballistic" arises from the fact that the rocket engines propel the missile for only a short period and for a fraction of the total distance covered. Guidance is provided only during the powered period of the flight and the missile then continues on its ballistic course much as a shell continues after leaving a gun. Ballistic missiles fly hundreds of miles above the earth at speeds numbered in the thousands of miles per hour. The rocket contains its own oxidizer to burn its fuel and it is, therefore, not dependent on the atmosphere for oxygen. Flight times are measured in minutes and such a weapon presents a very tough defensive problem for any enemy.

Mr. Felch noted that in 1955 the U. S. Air Force decided to employ its ballistic missile knowledge through an intercontinental ballistic missile now called the Titan. The Titan can carry a nuclear warhead more than 6,000 miles. The huge rocket is over 90 feet long and weighs more than 100 tons. The two-stage

rocket is designed so that the larger booster stage drops off after the rocket has traveled through the majority of the earth's atmosphere. A second stage rocket then takes over and the speed is boosted to a velocity which will carry the nose cone to its target area. When this speed is reached the nose cone separates from the second stage and the cone then continues in a ballistic trajectory to the point of re-entry into the earth's atmosphere.

MR. FELCH points out that the ballistic trajectory stage of flight is several times longer than the powered section and that the pay load reaches its greatest distance from the earth (apogee) during this coasting period. The nose cone's flight is governed by the laws of celestial mechanics which were first noted by Kepler and Newton. Determination of trajectories, in spite of existing and known rules, is complicated by several effects. The Cariolis effect, caused by the earth's rotation, makes a straight path in space appear as a curved path when referred to the rotating earth. The departure of the earth from a perfect sphere (the earth's oblateness) also modifies the trajectory. The earth, contrary to our classroom globes, is not a perfect sphere. It tends to flatten at the polar regions and to bulge out along the equator. These deviations complicate guidance of missiles.

Mr. Felch comments that ballistic missiles such as the Titan are guided only during the powered stage of their flight. This simplifies the task of duration and distance control of flight; however, it complicates and makes more stringent the requirements for accuracy during the brief power and control period. At the moment of termination of thrust the forward speed of the missile may be 24,000 feet per second. At this speed a variation of as

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"THE FEDERAL COMMUNICATIONS COMMISSION ISN'T GOING TO LIKE YOU STARTING OFF BY SAYING 'HELLO OUT THERE IN RADIO LAND.'"

little as one foot per second would result in a target area miss of one mile.

The Bell Laboratories guidance system belongs to a class of systems known as "command systems." Ground-based radar determines the position of the missile during powered flight. A computer accepts these data and by reference to trajectory information computes orders to keep the missile on its flight path. These corrective orders are transmitted by radio to the missile's autopilot and control system.

The most complex units, the radar and computers, are on the ground. This affords a saving in costs and in weight of the rocket itself. The expendable portion of the system, therefore, is kept at a minimum and this promotes higher reliability in the rugged environment of outer space.

The Bell Laboratories system is termed a "radio-inertial" guidance system and these terms refer to the combination of radio-transmitted instructions and the

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inertial guidance system contained in the rocket itself. This system was suggested by Sidney Darlington of the Laboratories' mathematical research department. Radar can provide position measurements of great precision. However, determination of the velocity components is obscured by "noise" in the frequency region above one cycle. The missile may then appear to be fluctuating in velocity at a rate of one or two cycles per second. The auto-pilot control system of the missile contains gyroscopes which stabilize flight in the absence of signals from the guidance system. By taking advantage of advance knowledge, the motion of the missile can be predicted with great accuracy. Darlington developed a theory that involves averaging the radar data, which causes a lag in the position of the missile, and an updating process based on inertial information. This combination of ground and air guidance effects considerable weight savings when compared with all-inertial guidance systems.

MR. FELCH noted that the radar employed in the Titan system is an out-growth of the Nike-Hercules system. In addition redesigned radar is now in production at the Western Electric Company plant at Burlington, North Carolina. Of prime concern in designing the new radar system was ease of operation and maintenance.

One officer will be able to operate both the radar and the computer from a single console. The "black box" system of

maintenance is used. With this equipment, faulty units ("black boxes") can be replaced from a complete stock of spare plug-in units. The faulty "black box" can then be sent off to a factory for repairs.

Computers for this project have been designed by the Remington Rand Univac Division of the Sperry Rand Corporation under the technical direction of the Bell Laboratories.

The Titan project, Mr. Felch points out, has been brought to its present state through the co-operative efforts of many scattered departments of the Bell Laboratories and Western Electric Company.

CAPABILITIES of Bell Laboratories' radio-inertial guidance system are currently being obtained from flights of Thor-Able II re-entry test vehicles. With the aid of the Bell guidance system two nose cones have been recovered after flights of 5,000 miles. Under active consideration at the present time is the application of the radio-inertial system to the guidance of satellites and space probes.

Bell Laboratories' activity in the field of missile guidance has contributed much to our national defense and to the gathering of scientific knowledge. In the public's mind "Bell" means "telephone" and articles such as this point out the great contribution that groups such as Bell Telephone Laboratories and Western Electric Company make to the scientific fields and to the military safety of our nation.

—C. M. B.

Power from the Atom

THE Edison Electric Institute has just published the second edition of its booklet entitled "Electric Power from the Atom." The new publication is a revision of a booklet first issued in 1956.

The publication reviews in brief form the various methods used in generating electricity and the ever-increasing demand for added generating facilities. The booklet notes that

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... It has been estimated that by 1979, the one-hundredth birthday of Edison's original electric light, the United States will be using more than four times as much electricity as in 1959—and the use will still be growing. Electric power from the atom will play an important part in ensuring that the United States will remain the leading nation in the world, both in industrial production and in the standard of living of its citizens.

At the present time 131 investor-owned electric companies are involved in 16 atomic power plant construction projects. In addition 11 major research and development programs are in progress. Three power plants built by state, local, or co-operatively owned organizations will be in operation by 1962. It is anticipated that these three plants will have a combined capacity of 110,000 kilowatts.

THE booklet notes that our conventional fuels—coal, oil, and gas—are in

adequate supply but that future needs and the future depletion of fuel reserves demand that atomic reactors and generators be developed now. It is pointed out that if all the atoms in a single pound of fissionable uranium could be split there would be energy released which would be equivalent to that given off by burning 2.6 million pounds of good quality coal.

OF special interest is a four-page listing of electric companies participating in atomic power projects and a map locating the programs now under way. There is also a tabulation of details concerning these plants, including reactor types, electrical capacities, plant locations, and the projected date of completion.

Edison Electric's publication is concise, nontechnical, and it should be a valued publication for distribution to the public. It tells, in simple to read style—with many graphic illustrations—what atomic energy is, how it is used to produce electricity, and its significance in the future.

Fair Rates of Return and Inflation

THE increasing preoccupation with the effects of inflation and with the unprecedented demand for additional service by customers of utilities is reflected in the frequency with which editorials appear in industry trade journals commenting on the situation. The July 18th issue of *Telephony*, for example, contained a two-page appraisal of what constitutes a fair rate of return, thoughts from which are worth relating.

Rate fixing in time of inflation, the editorial stated, is of vital importance for all telephone companies to enable them to attract necessary capital, expand and rehabilitate their plants. For small companies it may mean the difference between staying in or going out of business.

It was pointed out that rates in the telephone industry consistently lag behind price trends generally and that there is grave danger in the habit of commissions to accept sluggish telephone rate trends as a matter of course. Serious harm can result for

It can occur in the form of economic damage, undermining the credit position of telephone companies by not being able to invite equity capital into their enterprises, and their ability to go on functioning adequately in the public service. . . .

Aside from this lag situation, there is another threat to sound economic operation of telephone companies in a

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period of rising prices. That is the tendency of many regulatory commissions to squeeze the allowable profit—that is to say, the rate of return on invested capital—to a minimum. This compels owners of telephone companies to absorb an increasing amount of operating costs, before they can get back even with the board.

TELEPHONY's editor next attempted to trace the history of rates of return in the industry. During World War I the average rate of return, he said, that was allowed telephone companies by courts and commissions averaged a little more than 7 per cent. By 1922—an inflationary period—this had risen to 8 per cent. With the depression of the 1930's, the rate of return sank to 7 per cent and finally to 6 per cent.

Prices started to rise after 1936 and by 1946 had risen considerably. But not the rate of return for telephone companies. It was still about 6 per cent—in 1947 it was even lower. Today, the editorial pointed out, after twelve years of creeping inflation, 6 per cent is still considered by many commissions as a generous rate of return, despite the fact that today's rate base is generally far more limited than the rate base commonly used in the old days of a higher rate of return. The editorial stated:

In the old days, the rate base valuation was sometimes fixed on the "reproduction cost" value of the telephone property, and sometimes on the "original cost" value. In most rate cases, especially where the company figures on "reproduction cost" value were considered high, and the commission staff's original cost figures were considered low, the commission arrived at a judgment figure somewhere between the two. This was the "old-fashioned" rate

base and it usually worked out pretty liberal as compared with the strict "original cost—less depreciation" rate base which some of our state commissions have followed in recent years.

A return of 6 or 7 per cent on the "old-fashioned" rate base would work out, in the case of many telephone companies, to correspond with an 8 or 9 per cent rate of return on today's restricted rate base. The editorial continued:

. . . if commissions regarded a 7 per cent rate of return on the rate base of a telephone company as reasonable in 1929, why in the world are they talking about 6 per cent return, or even less, in 1959? They should be talking in terms of 8 per cent for all companies, especially for the smaller companies, and we think any *fair* economic analysis will bear out such a statement.

IN the face of an historical picture of diminishing return to the investor, the editorial asked, how are telephone companies going to raise the money they need? Two things can be done to correct this acute situation: (1) Telephone companies must ask for enough of a rate increase to attract the necessary equity capital to take care of needed plant expansion. (2) Regulatory commissions must recognize the need for allowing a more liberal rate of return to telephone companies so the commissions, themselves, can meet their responsibility to the public in seeing that it gets the best and most telephone service.

If we continue to shortchange the investor by keeping earnings of telephone companies too low, we must sooner or later injure the public and the workers. The telephone industry, to sum up, "needs more money if it is to continue to provide the quality and quantity of service the public is and will be demanding."

WHAT OTHERS THINK



"ALL RIGHT, ALL RIGHT, HE'S WAITING FOR THE TOOLS"

ASIDE from differences over the composition of the rate base, the standards governing the determination of a reasonable rate of return are neither definite nor static. There are probably good reasons why they should not be. But one of the inner contradictions of public utility regulation which every commission must resolve to its own satisfaction is the question of whether profit limitation in itself should be a controlling factor.

On one hand, a standard percentage of return to be allowed in all cases as an expected "norm" has an obvious drawback. It penalizes the efficient and holds an um-

brella over the inefficient. Likewise, placing sole reliance on the cost of money tends to allow a greater return percentage for the less efficient organization with the greater credit risk. Thus the efficient operator is penalized for reducing its own cost of money by commanding a better credit position in the money market.

How to reward efficiency while at the same time taking care of the extra revenue requirement of smaller corporate combinations is a real regulatory problem. Perhaps the answer lies in what the lawyers usually call, rather enigmatically, a consideration of the factors in each case.

PUBLIC UTILITIES FORTNIGHTLY

Electric Utilities and Oregon Highways

THE Oregon State Highway Commission, in co-operation with the United States Bureau of Public Roads, has had prepared a study entitled "Electric Utility Nonuser Benefits from Oregon Highways." This technical analysis was prepared by Professors H. T. Koplin and D. A. Watson of the University of Oregon and it is available from the Bureau of Business Research at that institution.

Public utilities are typically permitted to place utility poles on public highway rights of way. This study attempts to explore the economic implications of the free use of such highway rights of way. The study is restricted to electric power lines on federal-aid highways and in nonurban areas of the state of Oregon.

The fact that public utilities derive benefits from placing poles on highways is considered by the study. An attempt is made to determine the extent of the benefits derived by such placement and as a first approximation it is assumed that the benefit is represented by the net added cost should the utility be forced to locate on private property.

The report contends that the annual savings in easement costs amount to about \$200,000. In addition \$100,000 to \$150,000 must be added to represent savings in trimming and clearing costs. This produces a total benefit figure of from \$300,000 to \$350,000. From this total must be subtracted about \$100,000, which represents the cost of relocation when utility poles or lines must be moved. The final figure of \$200,000 to \$250,000, according to the study, is the annual net benefit to electric utilities from the free use of rural federal-aid highways in Oregon. The study notes that among the associated benefits is the ability of the utilities to offer lower electrical rates to the consuming public.

THE evidence examined by the professors indicates that the cost of having utility lines on the highway is "virtually negligible" in most cases. This is of course true, providing the utilities bear the cost of relocation should such moving of lines become a necessity.

It is noted that since public utilities do derive benefits from locating poles on highways, there is the possibility that some sort of tax should be levied by the state. It is concluded, however, that such a tax would not be conducive to efficiency. Even a tax which would be greatly below average benefits derived would tend to drive off some utility lines.

Regarding the subject of relocation of lines, the report indicates that it would be desirable to charge such costs to both the public utilities and the highway departments in order to encourage advance planning and the most efficient original placement of highways and utility lines.

It is concluded by the study that there is a net monetary benefit to utilities from the use of highways. In addition, there are numerous nonutility benefits derived from highway use, such as lower rates to customers. Advantages outweigh the disadvantages, according to the study, with the following exceptions: where the existence of lines on highways seriously affects (1) the safety of highway users, (2) the cost of highway construction or maintenance, (3) the flow of traffic, (4) the beauty of scenery.

PUBLIC utility companies, in general, will not agree with those conclusions of the report which appear to reject the argument that relocation expense is just as much a part of highway construction cost as grading, drainage, or other essential but allied expenditures as compared with

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actual cost of road construction. By way of giving the "other side" of this argument, the report quotes the following passage from the testimony of Edward Falck, consultant engineer of Washington, D. C., before a House Committee on Public Works back in May, 1955 (on HR 4260, 84th Congress, 1st Session) :

. . . a reimbursement provision would allocate the cost of utility relocation to the place where it belongs; namely, the highway project. This clear recognition and assignment of the cost of relocating utility facilities would provide an incentive for highway planners to select improved highway routes and engineering designs that would minimize the number, extent, and cost of relocation. Since these costs are a component part of the total cost of highway improvement, regardless of who may pay for them, they should be given serious study at the time a decision is reached as to which is the best of several alternative routes and designs. This is sound engineering economics. In a number of cases, a change of route of only one or two blocks would have resulted in a material reduction in the size of the utility relocation job. In other cases a design calling for an elevated expressway instead of an underpass would have substantially reduced the cost of relocating utility facilities. By including relocation costs as a part of the total cost of the highway project, the engineering planning will inevitably result in the most efficient and least costly solution. This is worth while not only as a matter of equity, but from the standpoint of obtaining the most economic overall costs for the benefit of our national economy.

ASIDE from the question of utility use of highways, as distinguished from the

relocation expense problem, there is one question as to the serious disparity of respective impact which relocation may have on different utility organizations. A statewide utility operation, or larger, can possibly absorb the highway relocation expense burdens which may strike here and there at various points within its service areas without serious economic consequences. But small organizations, such as a small independent telephone company may find their very solvency threatened by a highway program requiring expensive relocation of a large amount of outside line plant. Meanwhile, another small company just a few miles off the proposed route can go right along without any burden whatever by reason of the purely chance location of its service area and line facilities. The report does not go into the question of how to equalize such burdens—if indeed they can or should be equalized.

Then, too, there is the interesting factor of the alternative burden of highway traffic which would exist if electric lines, gas and water mains, and communications wires did not function as an infinitely more efficient substitute for physical carriage. One need only imagine the countless trucks, and other vehicles, needed to convey fuel, water, or intelligence via highway if local utility services were the only available substitute. Just how much, if anything, this factor should weigh in the scales of equitable determination of the justification of relocation expense for utility services is a most speculative consideration.

THE study was conducted under the supervision of Wesley C. Ballaine, director of the Bureau of Business Research at the University of Oregon. Mimeographed copies (at \$1 each) are available in limited quantity at the University of Oregon's Bureau of Business Research, Eugene, Oregon.

PUBLIC UTILITIES FORTNIGHTLY

Haze Surrounding Monorail

IN the general haze that surrounds monorail propositions, the line of approach seems to indicate that if monorail is economically feasible, it does not matter what it looks like, or what it does to the modicum of beauty some cities, like New Orleans, are fortunate and progressive enough to provide for major thoroughfares.

A somewhat meager exception was the allusion to "esthetic objection" contained in an antimonorail report for Washington, D. C. This is one of the reports (Detroit's being at least one other) which New Orleans' utility director recently provided for that city's administrative officer.

Washington has some beautiful boulevards and a greater "esthetic" stake, perhaps, than some other cities that fortunately or unfortunately do not have, so to speak, "much to ruin" anyway. Seattle is the only city which has a firm monorail project in the works (for 1961)—a one-mile link between downtown and fair grounds. Commenting editorially on monorail proposals for New Orleans, *The Times-Picayune* recently stated:

Before more thoroughfares like Canal are given over to elevated structures, citizens are entitled at the least to one of two devices for judging esthetic effect: (1) a full-size cheap "mock-up" on one or two blocks of the route; (2) an exact-scale model of monorail, streetway, trees, etc. How inspection of low-speed exhibition systems, in fair grounds or similar surroundings, can get you anywhere much along this line is hard to see.

Beauty is important to New Orleans; and the more feasible monorail should

turn out to be, the more likely would be its extension to more and more boulevard routes.

However, let us take the side of monorail to this extent: Separation of grade for rapid transit can be a wonderful thing. We will see it to some extent when Pontchartrain expressway is completed—except that here the elevation and rapidity are for motor traffic. To what would the New Orleans public have to be driven to accept a whole network of Pontchartrain expressways on boulevard routes? If they were willing to accept that, and able to pay for it, it could justly be said that monorail at its worst would look a whole lot better than a complex of massive, elevated freeways.

THE Washington plans, sans monorail, call, among other things, for a 66-mile network of freeways for express buses; and the "monorail people" seem entitled to ask: Which is going to involve more "esthetic objection" if the freeways are elevated?

Washington's airy \$2.5 billion project is out of this world anyhow for a city unsubsidized nationally. (Detroit's program was comparatively economical if not stingy—a \$255 million system, and the finding was that gross monorail revenue would just about meet debt charges.)

The Washington report contains another unfavorable allusion to monorail which as summarized could mean anything: "inadequate development." However, one possibility of more adequate development of the monorail idea lies in shaving down the bulk of its structure.

The March of Events



AEC Asks for Nuclear Power Plant Bids

JOHN A. McCONE, chairman of the Atomic Energy Commission, has announced that the commission is designing and plans to construct a small-size pressurized water reactor plant. The commission has invited proposals from co-operatives and public power organizations for participation in the project.

The small-size power plant is planned under the commission's Power Demonstration Reactor Program. The project will have as its major objective the development of a reactor which will make a significant contribution to the achievement of economical electric power in a small-size plant. Construction is expected to begin about May, 1960, with completion of the plant scheduled for May, 1962.

The proposed plant would use a pressurized water reactor for the generation of about 60,000 kilowatts thermal and 16,500 kilowatts electrical power. Installation of a superheater, which would make it possible to increase the electrical capacity of the plant to 22,000 kilowatts, could be included at the option of the proposer. The co-operatives and public power organizations will be expected to make a contribution which should include, as a minimum, provisions for plant site, turbogenerating

facilities, and associated buildings and services. Contributions beyond the minimum provisions will be considered in the final selection of a proposal by the commission.

Proposals must be submitted by November 16, 1959.

Big Nuclear Plant for Canada

CANADA is planning to build its first large nuclear power plant in Bruce county, on the eastern shore of Lake Huron. According to W. Neville Keefe, manager of the Georgian Bay Development Association, Atomic Energy of Canada and the Hydro-Electric Power Commission of Ontario chose the site for the 200,000-kilowatt installation.

The availability of water was a major consideration in choosing a location, he said. Lake Ontario and Lake Erie were not considered because of their population density. Canada is building a nuclear-fueled pilot plant that is expected to start feeding its 20,000-kilowatt output into the Ontario grid by 1961.

British Fear Excess of Atomic Power

BRITAIN's nuclear power stations are getting less business than expected, according to H. G. Nelson, head of the Eng-

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lish Electric Company. He said industrial fears about heavy costs are also causing much concern.

Too much capacity has been developed in the atomic energy field for the work available, Mr. Nelson said. Competition, instead of being a healthy stimulus, is "in danger of becoming an aggravation of a very serious situation," he added. Mr. Nel-

son warned that since the development of atomic power is extremely costly there is fear that the volume of business available may be insufficient to pay the costs of the industry as a whole.

This volume of business is smaller than originally expected, he said, because "availability" of coal and oil is more secure than was previously the case.

California

Asked to Back Increases

THE California Public Utilities Commission has asked the Federal Power Commission to require El Paso Natural Gas Company to post bond to assure refund of charges which later may be ordered after investigation of the \$27 million annual increase which went into effect August 1st.

President of the California commission, Everett C. McKeage, called attention to the fact that now El Paso has in effect three gas increases, none of which has been finally adjudicated by the FPC, which will cost California customers \$62 million a year. And in four years, he said, Californians already have paid more than \$100 million in gas rate increases, upon which decisions are still pending.

The California commission has also asked the FPC to see to it that El Paso keeps an accurate account of added charges due to the latest increase in order to be able to make accurate refunds. No hearing date for the rate increase has been set by the FPC. It will be opposed by both the California commission and California utilities.

Rate Case Protested

PAIFIC GAS AND ELECTRIC COMPANY OF San Francisco has asked the Federal Power Commission to deny a \$4.5 million

natural gas price increase that was requested by Phillips Petroleum Company of Bartlesville, Oklahoma.

PG&E filed objections to a recommendation by an FPC examiner, who said that Phillips, a gas producer, should be allowed to increase its gas prices to El Paso Natural Gas Company. El Paso supplies about 70 per cent of the natural gas distributed by PG&E to its customers in northern and central California. In 1958 PG&E purchased \$80 million worth of gas from El Paso—about 40 per cent of El Paso's interstate sales.

PG&E contended that an increase to Phillips would ultimately increase natural gas costs to California consumers. Pacific Gas contended that FPC Examiner Zwerdling had included a substantial amount in Phillips' costs to defray claimed exploration costs, but that this was unreasonable, inasmuch as Phillips buys more than 90 per cent of the gas it sells to El Paso from other producers, thus incurring negligible exploration costs on its purchases.

First Big Water Conversion Plant

WORK on California's first general purpose sea water distillation plant has begun at a site adjacent to Southern California Edison Company's Mandalay Beach steam station near Oxnard.

James F. Davenport, the company's

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vice president, said the pilot distillation plant will have a capacity of approximately 100,000 gallons a day. Its overall cost is estimated to be about \$250,000.

Davenport emphasized that it will be an experimental unit. It is not expected to produce water at a cost competitive to present sources, including that imported by

agencies such as the Metropolitan Water District, but will be used primarily for research and development and possibly to supply a portion of the fresh water needs of the Mandalay steam generation station, he said. The plant is expected to be in operation this year by the first part of November.

Florida

Rate Hike Plan Rejected

ALTHOUGH the Florida Railroad and Public Utilities Commission approved a \$1,585,000 increase in income for the Tampa Electric Company in July, it rejected the rate schedules submitted by the company which would enable it to earn the increase.

Charles H. Schwaner, vice president, secretary, and treasurer of the company, said his company proposed increasing rates for residential and small commercial and industrial users, but the commission in-

sisted that the increase be spread over all classes of users, including big industrial and commercial customers.

Schwaner said Tampa Electric felt raising rates on big industrial and commercial companies would slow up the growth and industrialization of Florida, especially in the area it serves. Tampa Electric will ask the commission to reconsider the rate proposals. The new rates, which were to have become effective August 1st, would have earned the company about 6.5 per cent on its rate base.

Georgia

Seek Larger Utility Fees

ALAW has been recommended by the senate government operations committee of Georgia's legislature that would require utilities to pay \$250,000 annually instead of \$70,000 for the operation of the public service commission. A law passed in 1922 provides that the PSC be financed by fees paid by the power, telephone, and gas companies, truck, rail, and bus lines, and other organizations which are regulated by the commission.

The utilities' share has been \$70,000, with truck and bus lines paying in about \$215,000. Only the utilities' share would be changed by the suggested legislation.

Larger utilities sharing the major part of the assessment, such as Southern Bell Telephone & Telegraph Company and Georgia Power Company, have indicated they would not object to the hike in the fee they must pay, which is based on current valuations of taxable property.

Illinois

Gas Expansion Plan Announced

THE Peoples Gas system of Chicago has announced details of a new expansion plan which will increase substantially

the gas delivery capacity of a subsidiary supply pipeline.

Texas Illinois Natural Gas Pipeline Company, one of two long-distance transmission subsidiaries of The Peoples Gas

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Light and Coke Company, has sought approval of a \$43.5 million construction program for this purpose in a petition filed with the Federal Power Commission at Washington, D. C.

Eskil I. Bjork, chairman of Peoples Gas, said the project involves an additional peak-day delivery of 85 million cubic feet of natural gas. Customer utility companies

in a seven-state area in the Midwest would receive the added supplies.

The major portion of the construction involved in the project would be the building of 371 miles of 30-inch line parallel to the company's 1,400-mile line from the Gulf coast fields of Texas. Also to be constructed are about 55 miles of lateral lines and one 6,700-horsepower compressor.

Kansas

Gas Storage OK Sought

THE Otis gas field of Rush and Barton counties, Kansas, nearly depleted after thirty-one years of supplying gas to the homes and industries of the Plains region, will become a vast underground storage tank if the application of the Northern Natural Gas Company to the Federal Power Commission is approved.

Northern has asked permission to develop the field in south-central Kansas for the ultimate storage of about 182 billion cubic feet of natural gas.

Administrative Vice President William

Strauss has estimated the cost of equipment and facilities for developing and operating the field at about \$20 million. If development proceeds as scheduled, the field will be capable of delivering 245 million cubic feet of gas per day by 1962 and a maximum of 350 million cubic feet per day by the following year.

The Otis project will be Northern's second underground storage operation. The company's site near Redfield, Iowa, is expected to be fully operational in the near future and at full capacity will store some 140 billion cubic feet of gas.

Kentucky

Paducah Utility Pact

THE city of Paducah, which has been seeking to acquire the local distribution facilities of Kentucky Utilities Company, has reached an accord with the company on everything except the length of the contract under which it would buy Kentucky Utilities' power at wholesale rates.

The difficulty stems from the desire of Kentucky Utilities to obtain a long-term contract, whereas the city does not want

to get tied up and prefers a short-term agreement. Paducah has been trying to acquire Kentucky Utilities' power distribution facilities for the past fifteen years. As soon as the present negotiations are completed, the acquisition question—that is, the right to buy the facilities—must be put to the voters on the November ballot for approval or disapproval of a revenue bond action needed to enable Paducah to make the purchase.

Maine

Asks Court for Rate Relief

TWO requests have been filed by the Central Maine Power Company with

a Maine court asking relief from a decree ordered by the Maine commission which drastically pared down a new rate sched-

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ule filed ten months ago. The first request asked that the tribunal "upon its own independent judgment, review, modify, amend, or annul said decisions, orders, and rulings of the commission to the extent of the unlawfulness thereof and grant to the petitioner such other or further relief as the nature of the case may require." The other petition was the customary appeal of alleged errors.

The original rate schedule called for new rates averaging about 8½ per cent higher and estimated to produce \$3,150,000 of additional gross revenue. The commission, after lengthy hearings, ruled that the company might have a rate increase to produce \$898,000 in revenue, effective July 7th.

The new rates averaged about 2.75 per cent for residential customers.

Maryland

Transit Plan Unveiled

IN Baltimore an unprecedented plan for a Metropolitan Transportation Authority which would have wide transport powers has been announced. The envisioned authority would have power to own, lease, operate, combine, or subsidize transit facilities and generally do what is necessary to provide streamlined mass transportation.

One important control mechanism in the legislation that is proposed would be a referendum requirement in the metropolitan area before the authority could own or operate a mass transportation system. Also the authority would be unable to condemn land or property in any subdivision without the approval of the local government.

The authority would control transit in Baltimore city and Baltimore county, Anne Arundel county, Howard county, and Harford county and be composed of seven

commissioners, three of whom would be appointed by the mayor of Baltimore and one by the top governmental authority in the four counties.

Under the proposed legislation, the authority could put into effect any combination of public or private ownership—or simply regulate a subsidized private operation.

The authority's subsidy powers could be exercised through its immunity from taxation and through its power to lease property and equipment to private operators.

It would take over the powers of the public service commission with regard to public transportation in the area and would fix rates and schedules after hearings. The expressed objective of the authority would be to make public transportation so attractive that the public would want to use it and leave their cars at home.

Missouri

Rate Boost Starts

THE rate increase of \$6,478,000 that the Missouri Public Service Commission granted to Union Electric Company in July has gone into effect despite protests from city, county, and municipal authorities.

The commission denied a motion for a rehearing on the case. St. Louis' city counselor said the city would not contest the 7 per cent increase in view of this action. The commission estimated that the amount it allowed, which was the full amount asked for by the company, would

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give Union Electric about \$2,968,100 in about 5.25 per cent. The average residential net operating income and potential customer, it was thought, would find proximate what the commission had determined to be a fair rate of return—about 74 cents more a month on his electric bill as a result of the rate boost.

Nebraska

Six-state Gas Plan OK'd

THE Federal Power Commission has authorized Northern Natural Gas Company to begin providing natural gas for 342 communities in six midwestern states. Northern will build \$114.6 million worth of new facilities to supply its gas service to Minnesota, Wisconsin, South Dakota, Nebraska, Iowa, and Illinois.

Higher rates than those contained in Northern Natural's application were or-

dered by the FPC. In one zone the FPC ordered a commodity rate of 25.97 cents per thousand cubic feet and a demand charge of \$2.91 compared with the company-proposed rate of 23.4 cents and \$3.81. In the other zone, the FPC listed rates of 26.47 cents and \$3.23 compared with Northern's rates of 23.9 cents and \$4.12.

With the approval of Northern Natural's expansion program, at least one big step has been taken by the FPC in concluding one of its largest cases.

New York

Antismoke Plan Aired

CONSOLIDATED EDISON COMPANY OF NEW YORK has announced plans for reducing smoke of its recently acquired transit power plants. The company said it hopes to accomplish this objective by utilizing as much as possible the new electric generating equipment obtained by the city of New York in recent years and in some instances shifting from coal-firing to oil.

Consolidated Edison officials said they will confer with Dr. Leonard Greenburg, Commissioner of Air Pollution Control, in an effort to work out a definitive program.

Since 1937 Consolidated Edison has spent \$63 million on a formal co-ordinated program of air pollution control, a company spokesman reported. Its efforts to cut air pollution as it starts to operate the three new transit power stations will be a continuation of that program.

Texas

Gas Rate Hike Argued

UNITED GAS CORPORATION has asked for an average increase of \$1.69 a month on gas bills for residential customers, but some Houston councilmen feel this is too much. In fact, one councilman seemed to feel that the increase should be no more than that granted recently to Houston Natural Gas Company—75 cents a month more on the average residential bill.

The city's public service director stated that both companies historically have had the same rates, but his investigations thus far indicate that United Gas has been making less per customer than Houston Natural. But he said he had not determined whether the investment per customer is more for United.

A rate expert for United Gas testified that the company earned only 2.04 per cent on its investment during the twelve months ending May 31st.



Progress of Regulation

Trends and Topics

Rate-making Power Reaches Salaries and Wages

ALTHOUGH commissions disclaim authority to govern a public utility's administrative policies with respect to salaries and wages, they obviously exert an influence over such policies by way of the rate-making power. Regulatory agencies have full power to determine what constitutes reasonable salaries and wages for rate-making purposes and may disallow excessive expenditures as an undue burden upon the ratepayers. Such expense, if disallowed, must either be discontinued or borne by the stockholders.

While regulatory authorities state the jurisdictional rule quite uniformly, their decisions generally contain rather more than a bare allowance or disallowance of salary and wage expense. Reflecting the economics of the times, they sometimes express public policy considerations with respect to employment and urge management in directions thought to be advantageous to the public.

The Commission "Expects, Directs..."

Indianapolis Railways, in a rate proceeding, claimed a substantial amount for overtime payments to its bus drivers, incurred as a result of its failure to employ a full complement of drivers. The expense was actually incurred and, in the absence of an abuse of managerial discretion, could not be ignored by the mere expedient of the commission substituting its judgment, as to the best way to operate the business, for that of the company. The Indiana commission declared, however, that it "expects, directs, and strongly urges petitioner to take all possible steps to utilize the entire labor market in the Indianapolis area and to take all steps necessary to keep its overtime wage payments as low as possible, and to decrease the payment for overtime wages . . ." (100 PUR NS 207).

Officers' Salaries

Very recently the North Carolina commission denied a rate increase to the Mebane Home Telephone Company where the utility failed to prove the rea-

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sonableness of salaries and bonuses to its officer-shareholders amounting to 37 per cent of revenues. The commission noted that the services of the officer-shareholders were plainly of value to the company and that so long as payments to them do not jeopardize the continued operation of the utility the amount of the compensation is a matter for management. In such a situation the commission has neither authority nor inclination to order the payments discontinued, it was pointed out. However, for rate making, the question of reasonableness must be determined.

Ordinarily, the commission continued, when a utility pays a salary to an outsider for services performed under an agreement made at arm's length, there is a presumption that the payment is reasonable. But where the owners of a utility corporation, acting for it, pay money to themselves in the capacity of officials, the burden of proof is upon such owner-officials to show that services rendered are reasonably worth the compensation paid. Otherwise any utility might pay to its officer-shareholders all its earnings as salaries and never show any return on investment. (Reviewed in PUBLIC UTILITIES FORTNIGHTLY, July 30, 1959, page 253.)

The Mississippi supreme court upheld a reversal of a commission order reducing the salaries of the president and the treasurer of a telephone company. The commission had found that, especially since the company had been operating at a loss for several years, the salaries of the two officers were excessive and should be reduced for rate-making purposes.

Although recognizing that operating losses are relevant, the high court held that the evidence did not warrant a finding that the salaries were excessive. On the contrary, the president, who was the principal owner, devoted full time to the management of the company. It was noted that the corporation, having assets of about \$450,000, must be managed by someone who knows the job. The duties and services of the treasurer, who was the president's wife, were found to be considerable, even though she performed some of her official duties from a desk in her home. There was no evidence of fraud, inefficiency, or mismanagement.

The court commented, however, that where officers' salaries are fixed by themselves as stockholders and members of the board of directors, the commission should carefully scrutinize the compensation paid (28 PUR3d 473).

The Louisiana commission disapproved relatively high telephone company salaries. While observing that it was in no position to evaluate the earning capacity of utility executives, or other employees, the commission declared that it was in a position to rule that a small, independent telephone company could not prudently pay out in executive and office salaries more than \$17 per subscriber per year, or over 25 per cent of gross operating revenues. The commission also disapproved the company's practice of paying income taxes for its employees and charging the amount as additional salaries (25 PUR3d 82).

Bargaining Rights Observed

In commenting on the limits of its authority with respect to wages, the Kansas commission declared that the regulatory process, as a practical matter,

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must accept the results of bargaining between a utility and the union representing its employees, and that wages paid pursuant to such bargaining are necessary operating expenses (3 PUR3d 213).

The New York commission similarly indicated that it will not interfere with the collective bargaining rights of employees and that any payment or benefit given labor, in the absence of proof of bad faith, is presumptively a proper expenditure for rate-making purposes (5 PUR3d 33; order reversed on other grounds). In another case, the New York commission pointed out that it had no jurisdiction over wages paid by a utility, but in considering operating costs for rate making all wage claims currently in existence must be considered (79 PUR NS 125).

In a telephone rate proceeding, the New Hampshire commission indicated that it is not concerned with the wage rates of utility employees unless, through the monopolistic character of the industry, they become out of balance. No claim was advanced that the company had been overgenerous with its employees. It had simply been caught up in the pattern of wage increases sweeping the country. It is not proper for the commission to judge whether such increases are justified, if they were, in fact, arrived at by fair bargaining, the commission stated (71 PUR NS 243; case remanded on other grounds).

Wage Levels in the Depression Years

Regulatory concern about the level of salaries and wages has not been limited to inflationary times. In the early 1930's, the South Carolina commission took note of the declining level of wages across the nation and made it clear that utility wages were not privileged to remain at 1929 levels at the expense of the ratepayers. The commission has a duty as a matter of public policy, it was pointed out, to allow as operating expenses only such salaries and wages as appear to be fair and reasonable, considering the general economic conditions. Noting the increased purchasing power of the dollar in 1933 over its value a few years before, the commission held that the failure of a telephone company to reduce salaries and wages was "unjustifiable and does not comport with public policy." It reduced the company's expense allowance for salaries and wages and ordered a reduction in rates (PUR1933B 181).

Although the commission cannot usurp the managerial functions of a utility's board of directors in regulating the payroll, said the Montana commission, it is within the commission's province to scrutinize abnormal increases in officials' salaries, especially where there is no showing of additional services rendered. This is particularly true where officers of a dominant parent corporation are being attached to a subsidiary utility's payroll. The commission does not assume to pass upon the question as between the company and its stockholders, it was indicated, but the matter is considered as between the utility and its consumers—the public (PUR1933D 337).

But the Massachusetts commission pointed out that it was a question for management whether salaries could be reduced without an impairment of effi-

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cency. A petition had urged that substantial savings could be effected by reducing salaries of an electric company (5 PUR NS 369).

Attitudes in the Mid-1930's

As the depression turned upward in the mid-1930's, less was heard of salary reductions and more of increases. Considerable judgment must be left to the board of directors, the Michigan commission declared, for they are the best judges of the value of the executive officers of the company, both to the utility and to the public. The commission indicated that if expense items are "patently unreasonable or fraudulent" it would be proper to disallow them (16 PUR NS 9).

The Washington commission, though recognizing a lack of authority to deal directly with wages, noted that it must consider them because of their importance as an operating expense. Viewing a proposed wage increase in the light of public policy, the commission stated that it favored the wage adjustments since they would materially benefit not only the employees, but the customers and stockholders, and the public generally. And because of rising living costs, the commission expressed the opinion that the employees were entitled to a wage increase (11 PUR NS 75).

Review of Current Cases

Commission Rules on Accelerated Depreciation, Employee Discounts, and Advertising Expense

THE Michigan commission granted a rate increase of over \$6 million to Consumers Power Company. The new rates were calculated to yield a return of 6 per cent on a depreciated original cost rate base, plus an allowance for working capital. This was deemed sufficient to maintain the company's financial and credit standing at a level which would provide a reasonable return to existing investors and also permit the company to obtain additional capital on satisfactory terms.

In fixing the return allowance, the commission gave due consideration to the fact that a portion of the company's financial requirements had been, and were being, met through the use of funds retained by virtue of taking advantage of accelerated

depreciation for income tax purposes. It referred to an earlier decision in the Michigan Consolidated Gas Company case (22 PUR3d 369), in which it said that so long as there was a balance in the reserve for deferred general income taxes, the benefit of that amount of interest-free capital should be passed on to the ratepayer. It followed this principle in the present case.

Taxes and Accelerated Depreciation

The company and the commission staff agreed on the tax effect of accelerated depreciation while a ratepayers' association took a stand in substantial opposition. Briefly, the company and the staff position was that the difference between income taxes calculated by the use of straight-line

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depreciation and income taxes calculated by the use of an accelerated method of depreciation was a legitimate part of the cost of service. They successfully argued that this difference represented merely a deferral of taxes, rather than a permanent saving.

The commission agreed, saying that the normalization of income tax does not mean a windfall to the company because no more than the full cost of a property can be claimed as depreciation over the life of that property. Again, the commission referred to the Michigan Consolidated Gas Company case, mentioned above, in which it had concluded that (1) the total amount of depreciation that could be claimed for tax purposes was the same under both accelerated and straight-line methods, (2) a definite liability for additional future income tax results from the use of accelerated depreciation, (3) the use of such depreciation does not result in an overall tax saving, (4) the deferral of taxes does not in any sense force a ratepayer to contribute capital to a utility, (5) the treatment prescribed by the commission correctly recognized the intent of Congress in providing for accelerated depreciation.

Employee Discounts and Other Expenses

The company allowed a 25 per cent discount on merchandise purchased from it by its employees. The company claimed that this discount constituted a fringe benefit to employees, and that the cost of the discount as it affected electric department employees should be included in the cost of service for electric rate-making purposes. The commission disagreed and excluded such costs from the company's allowable operating expenses.

The commission also disallowed, as an operating charge, contributions to industrial development groups, to colleges for

scholarships, and to various groups for courtesy advertisements in their publications. The commission held that such contributions made at the discretion of management imposed an undue and involuntary burden on the ratepayers.

The company paid slightly over \$50,000 as its share of an electric utility industry advertising program devoted in considerable measure to commentaries on the private *versus* public power issue. These advertisements appeared mainly in nationally circulated magazines. The company argued that all of the cost associated with this program was legitimately chargeable to electric operations. The commission disagreed on the ground that this expenditure did not benefit the company's customers.

Dissenting Opinion

In a dissenting opinion, Commissioner James H. Lee discussed various points of disagreement with the majority opinion. In the first place, the commission had allowed as an operating expense a wage increase which had been placed in effect subsequent to the test period used in this rate case.

The majority offered the primary reason in support of this allowance, that the increase was, as of the present date, in effect and that because it was an accomplished fact, it should be considered to be part of cost of service.

Commissioner Lee, however, believed that such a conclusion obscured the true purpose of the use of a test period in rate cases. He agreed that changes known at the time of rate hearings may properly be included, but went on to say that some point of cutoff must be employed. Otherwise, he said, a rate case could never be concluded because a definite test period could never be decided upon.

Commissioner Lee also disagreed with

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the majority in its allowance of the reserve for deferred federal income taxes in the cost of service. He claimed that only actual taxes should be included in the cost of service, citing as support for his views orders of other commissions and courts, such as the New York, Maine, North Dakota, and West Virginia commissions and Maine, Pennsylvania, and Illinois courts.

The company supplies both electric and gas service. Commissioner Lee argued that in such a rate case as this one, the rates of all departments should be reviewed. He pointed out that the company's securities were not segregated as between gas and electric operations but were sold and traded on the basis of the entire property and earnings. *Re Consumers Power Co. D-2916-59.2, May 22, 1959.*



End-of-period Rate Base and "Cushion" for Capital Cost Rejected in Electric Rate Case

CENTRAL MAINE POWER COMPANY obtained from the Maine commission only \$898,000 of a requested increase in gross annual revenues of \$2,794,000. The company urged that its earnings were insufficient to meet its financial needs, including increased expenses and new money requirements for plant replacement and expansion and for refunding of short-term debt.

Year-end Rate Base Rejected

A proposal to use a year-end rate base in order to offset the detrimental effects on earnings resulting from regulatory lag and attrition was denied. The commission considered this request in determining a fair rate of return. An average rate base is the only one which relates income correctly with the net investment over the period, said the commission. A year-end rate base would distort this relationship.

Doubtful Property Claims Unsupported

In fixing a reasonable value for utility property, the commission is required, under Maine law, to consider the cost of the property when first devoted to public use, prudent acquisition cost to the utility, less depreciation on each, and any other material evidence except current value.

Although several substantial properties were questioned as proper rate base items, the company failed to sustain its burden of producing substantial evidence upon which the commission could properly fix a reasonable value. The properties came into the Central Maine Power system back through the years and involved, in one case or another, affiliates, interlocking directorates, acquisition costs above original cost, and write-ups.

The company has the burden of proving prudence in acquiring property. Prudence means that a benefit in rates and service must accrue to the consumers at the time of purchase. The excess over original cost represents in most instances capitalized earnings, it was noted, and justification for the inclusion of such an increment of value in the rate base must be shown. The properties were disallowed.

The commission excluded certain riparian rights, as to which no engineering evidence was offered to show their necessity operationwise. Construction in progress, for which interest was being charged, was disallowed. Also ruled out was an appreciable excess of book value over priced inventories. "This amount," the commission commented, "could not be assigned to property on the face of the

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earth but is still on the books of the company."

Working Capital Deductions

The commission used forty-five days' expenditures as the basis for a working capital allowance. The average of the material and supplies inventories was reduced by a large amount of this account which was devoted to construction purposes. A twelve months' average of federal income tax accruals was also deducted from the working capital requirement. This deduction was considerably greater than the minimum balance urged by the company.

Test-year Adjustments

A test year is justified as a basis for forecasting future rate of return on the assumption that the growth of revenues and of income will tend to take care of the growth in the rate base, and that the factors which interfere with this corrective tendency can be allowed for by measurement or judgment. Rates must be based on a normal and typical relationship of investment, revenues, and expenses.

Adjustments may be made in the test-year figures to reflect typical conditions, but evidence relating to remote changes which would distort the test-year figures should be rejected.

The commission ruled that substantial additional maintenance costs relating to a project which covered a powerhouse foundation which had moved or slipped was an unusual and nonrecurring expense not to be used as a premise for fixing rates. A wage increase was allowed, how-

ever, even though the factors which gave rise to it, as well as the increase itself, occurred after the 1958 test year. The actual general and administrative expenses for 1958 were not considered a normal expense for rate making. The item was adjusted to account for that part of this expense which was found to have been applied to construction.

Allowance for Growth in Sales

Kilowatt-hour sales by the company were subnormal in 1958 because of a nation-wide recession. It was necessary to allow for this situation in order to obtain typical data for the test year.

An assumption by the company's witness that the growth in power sales is zero per year was declared to be "demonstrably erroneous." Drawing authoritative support from Pennsylvania and California cases (25 PUR3d 273, 28 PUR3d 10), the commission made an appreciable allowance for this growth factor in determining net operating income.

"Cushion" for Capital Costs Denied

Because capital may become higher, the company suggested that a cushion be allowed above the currently indicated fair rate of return. The commission could find no justification for such an allowance. All cost rates proposed, particularly the cost rate of equity, contained adequate cushions, it was noted, and a capital structure stronger than the actual one was used. The commission arrived at a fair rate of return of 5.75 per cent, recognizing an equity cost of about 9 per cent. *Re Central Maine Power Co. F.C. No. 1572, June 30, 1959.*



Normalized Tax Theory Adopted by Illinois Commission

THE Illinois commission, in approving an electric company's application for

increased rates, and holding that a 5.48 per cent return on a fair value rate base was

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reasonable, devoted considerable space to discussing the expense treatment of federal income taxes when utilities avail themselves of a rapid recovery option under §§ 167 or 168 of the Internal Revenue Code of 1954. The commission concluded that, in fixing rates, normalized income taxes should be allowed in order to give the utility the major benefit of any temporary deferment of the payment.

In the first place, pointed out the commission, Congress gave this privilege to all taxpayers, and the commission did not believe that it had the right to deprive one class of taxpayer—namely, the utilities,—of such right. In the second place, the commission believed that the use by a taxpayer of accelerated depreciation does not actually result in tax savings but only tax deferment, and when a regulatory commission allows only straight-line depreciation, it must allow the greater normalized income taxes.

Proper Allocation of Expenses

Expenses must be properly allocated not only between departments and areas but also to a particular period of time, pointed out the commission, in order that the user of a specific service in a particular area and during a particular period of time shall bear all the costs of rendering such service. The law is firmly settled that a ratepayer cannot be required to pay rates to cover either past or future expenses, but only those expenses necessary to provide service in the current period.

The only difference between the ordinary depreciation program and the faster recovery of the cost of the unit, continued the commission, is the timing of the depreciation charges and its effect on the income tax.

If the commission should pass on to the present ratepayer the abnormal reduction in the tax resulting from an ac-

celerated depreciation option, it should, in all fairness to the utility, later allow as expense the abnormal increase in taxes over many years, which would mean charging other customers for the benefits given present customers. The commission did not believe that the abnormal reduction should be passed on to the present ratepayer.

Tax Deferment

The commission went on to say that other regulatory bodies as well as utilities seem to find difficulty in seeing only tax deferment in the application of § 167 because of the apparent continued increase in the reserve for deferred taxes, leading some to conclude that such deferred taxes might never have to be paid. There is no more basis for such argument, in the commission's opinion, than to say that the continually increasing balance in accounts payable, injuries and damages reserve, or pension reserves in a growing company would never have to be paid. In all such cases estimates have to be employed, but, if carefully made, they are not to be rejected as fictitious.

Some are inclined to shrug off the certainty of a day of reckoning as a vaguely distant possibility, the commission said. However, since the utility has the right to revert to straight-line depreciation at any time, or Congress may repeal the law, such increased actual taxes may be a reality on short notice.

Benefit to Ratepayers

Although the commission held that the major benefits of the deferment of income taxes belong to the taxpayer, it also pointed out that the ratepayers are not without benefit. Such benefit to the ratepayers should result from some lower cost of money (an important factor considered by the commission in determining

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a fair rate of return) to the utility on the smaller aggregate amount of capital funds required because of the accumula-

ting reserve for deferred income taxes. *Re Union Electric Co. No. 45465, July 22, 1959.*



Gas Company Cannot Issue Stock as Remuneration To Key Personnel

A NEW YORK court ruled that a proposed issuance of stock by Brooklyn Union Gas Company as a means of remunerating key personnel under a restricted stock option plan was prohibited by the state Public Service Law. The court confirmed the commission's refusal of authority to issue the stock even though, judging from the language of the administrative opinion, the commission went beyond its administrative function and entered the field of management, apparently basing its decision on its view of the advantages and disadvantages of the option plan rather than on the lack of statutory authority for it.

The Public Service Law authorizes a utility to issue stock for specified capital purposes, including the reimbursement of the company's treasury for capital expenditures. The law further provides that the commission shall have no power to authorize the issuance of stocks for other purposes and that, moreover, the commission in authorizing any issue must state that the purposes of the issue are not in whole or in part chargeable to operating expenses or to income.

Under the state stock corporation law, on the other hand, stock corporations are authorized to issue stock options for such consideration as the board of directors may fix. Brooklyn Union Gas urged, in effect, that the stock corporation law

should be read into the Public Service Law, so as to authorize a utility, which is a stock corporation, to issue stock under the proposed stock option plan.

While a utility may be a stock corporation, the court pointed out, it is monopolistic in nature and in a more restricted category than an ordinary stock corporation.

The court agreed, however, that the two statutes should be read together, but only when it is possible to do so without violence to the more restricted provisions of the Public Service Law.

Under any normal system of accounting, compensation paid to officers or employees is chargeable to operating expenses and income, and is not a capitalizable expense. The court could not see how the commission could be compelled to make an order stating that the proposed issue was not in any part chargeable to operating expenses or income. Nor could the commission have reasonably found that the proposed issue was necessary for a proper capital purpose.

The court observed that the proposed stock option plan may well be an excellent management proposition. But absent statutory authority for such a plan, recourse must be to the legislature. *Brooklyn Union Gas Co. v. New York Pub. Service Commission, 187 NYS2d 207, affirming (1958) 24 PUR3d 445.*



Acquisition of Independents by Bell Company Approved

THE Federal Communications Commission approved an application of

the Wisconsin Telephone Company, a Bell subsidiary, for permission to acquire

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the telephone plant and properties of two independent companies. The commission found that integration between Wisconsin and the two independents would be more compact geographically and would contribute to a greater uniformity in service and rates than would integration of the two independents with any other independent.

There had been no offer or tangible proposal of any kind from any independent before the commission for consideration. The so-called "acquisition policies" of Bell had not been shown to have been employed in the transaction. Need for first-class service of the subscribers to be served was urgent and required immediate satisfaction. The present owners and proprietors were unable to improve the service, and the commission found that Wisconsin could provide such service promptly. There had been no "bidding" or "auctioning" of or for the vendors' properties.

Purchase by Independent

The commission discussed at length some interesting questions raised by the United States Independent Telephone Association. For one, the USITA had urged the commission to adopt the policy that no Bell company should be permitted to acquire an independent telephone property, even though the interests of a particular

locality would be served thereby, whenever an independent purchaser is ready, willing, and able to buy the property. Such a policy would thwart the congressional intent in passing § 221(a) of the Communications Act, said the commission. This section empowers the commission to approve an acquisition if it is found that it would be of advantage to the person to whom service is to be rendered and in the public interest.

An acquisition, pointed out the commission, is to be determined on a case-by-case basis.

Such proceedings are in no sense comparative. It is not the function of the FCC to decide whether a possible purchase by someone else might be in the public interest. It only decides whether the proposal contained in the application in question meets such standard. The commission refused to postpone to an undetermined time the expansion of a telephone company operating a large metropolitan exchange to surrounding and contiguous territory, when an independent company operating in surrounding and contiguous territory is either unable or unwilling to provide adequate service, solely on the ground that some other independent should be substituted for the dilatory incumbent company. *Re Wisconsin Teleph. Co. Docket No. 12308, File No. P-C-4096, July 6, 1959.*



Gas Rate Increase Subject to Refund Is Not Reviewable

THE federal appeals court for the fifth circuit ruled that it had no jurisdiction to review an order of the Federal Power Commission placing in effect, subject to refund, a rate increase filed by a natural gas pipeline company. At the hearing before the commission, the petitioner, a retail customer of the pipeline, did not question the commission's authority to al-

low the increase but merely protested the increase on the ground of reasonableness.

In seeking judicial review, however, it contended that the commission was without authority to allow the increase, which allegedly violated a contract subsisting between the customer and the pipeline. The court held that the commission should have an opportunity to pass upon the mat-

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ter of its authority before a court grants review. Since the customer did not actually intervene in the administrative proceedings but merely responded to an invitation by the commission to submit comments on the proposed rate increase, the Federal Power Commission and the pipeline urged that the customer was not a party aggrieved

within the meaning of § 19(b) of the Natural Gas Act and, therefore, not entitled to seek review. But the court declined to say that the customer was not a party aggrieved, in view of the commission's invitation for comments. *City of Corinth, Miss. v. Federal Power Commission*, No. 16956, June 29, 1959.



Advance Approval of Gas Purchase Contract Denied

THE California commission dismissed an application by Pacific Lighting Gas Supply Company which, in effect, requested a declaratory decision approving the form of a new long-term gas purchase contract, together with proposed prices, before the company incurs any major obligations under it.

In support of its application, the company called attention to an earlier decision of the commission in which the applicant was required to take all necessary steps to resist unwarranted increases in field prices of gas purchased either inside or outside the state of California. The staff was of the opinion that the company was trying to shift to the commission its duty to negotiate contracts.

It is a general rule of regulatory law, the commission noted, that contracts such as the instant gas purchase contract, are not subject to approval or disapproval by a regulatory body unless there is specific

statutory authority to that effect. An exception arises when a contract will prevent the utility from performing its public duty, in which case the commission has authority to regulate the contract. But the commission held that this contract was not of that character.

It was pointed out, however, that the company was to be commended for seeking approval of the new contract. Nevertheless, the commission must remain within the bounds of regulatory law even though a requested action which transcends such bounds might appear to be in the public interest.

An advance ruling on the gas purchase contract, though not binding for rate-making purposes, might be misleading and productive of misunderstanding when a rate proceeding later arises, the commission stated. *Re Pacific Lighting Gas Supply Co. Decision No. 58677, Application No. 41004, June 29, 1959.*



Water Certificate Denied

THE Colorado commission denied an application for a certificate authorizing distribution and sale of water for domestic use in a certain area, on the grounds that the speculative nature of the development of the land involved cast a cloud upon the financial integrity and stability of the applicant, as well as on the

proposition that public convenience and necessity, as a matter of fact, truly did exist.

It was a paradoxical situation, said the commission, because a water company was to be developed, and its source of financial succor was the land which it would serve for home sites. The value of

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the land, in turn, as home sites, was dependent upon the development of the water company. It was patently obvious to the commission that the liquidity of the assets was based upon hopeful contingencies,

which might or might not develop. The commission refused to indulge in the vagaries of speculation. *Re Great Northern Utilities Co. Application No. 16935, Decision No. 52548, June 22, 1959.*



"Facility Charge" for Fire Protection Rates Denied

THE California commission, in approving, as modified, a rate increase for the water system of the Pacific Gas and Electric Company, which would produce a return of 6.15 per cent, denied the company's request to revise private fire protection rates, concluding that the deficiencies in the proposal outweighed the possible inequities that might exist under the present form of schedule.

Present private fire protection rates were based upon a flat monthly charge depending upon the size of pipe, plus a commodity charge for the amount of water used. The flat monthly charge included components for capital and expense items.

The new proposal, already in effect for electric service, represented an innovation in water rate schedules. The company sought to replace the flat monthly charge with a lower service charge plus a "facility charge" of one and one-half per cent per month of the estimated cost of company-owned facilities installed plus the commodity charge for amount of water used. If a customer elected to advance the total estimated installed cost, the facility charge would be three-fourths per cent.

Depreciation Objective Defeated

The commission did not believe that the cost of providing service can be properly related to the cost of the physical installation as advocated by the company, particularly for customer-owned facilities. For example, the company proposed to include in the facility charge an item of depreciation on the theory that the company

would in time have to replace the facilities at its own expense.

The commission pointed out that such a proposal was contrary to the basic objective of depreciation, which is the recovery of original cost of fixed capital, less estimated net salvage, over the useful life of the property. Depreciation does not relate to replacement of capital items. Since the company would not have furnished the capital for installation, it would obviously be inequitable for it then to claim, as an expense, depreciation on plant supplied by others. Moreover, the company's proposed schedule would base the facility charge on a percentage of the total estimated installation cost, which could well lead to controversy as to what would be included in the total cost and what would be the basis for the estimates of such cost.

Other Disadvantages

The proposed schedule would result in an overall increase of 200 per cent in revenue from private fire protection service. The charges for many customers would undoubtedly result in increases considerably greater than this. Moreover, application of such a schedule could well result in rates very different for different customers with similar facilities, depending upon the age of such installation and its cost at the time of installation. When an old installation requires replacement, the same facilities installed at probably much higher cost would result in appreciably higher rates to the customer without any corresponding increase in availability of

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water. Finally, the proposed rate would impose a difficult administration problem on the commission.

The commission could see no reason for a change in the historical concept of charging for such service on the basis of the size of connection, even though it recognized that the present method might

have imperfections. The simplest solution, the commission said, is to restrict future installations to those wherein the customer pays for such installations, in accordance with the usual practice of water utilities in the state. *Re Pacific Gas & E. Co. Decision No. 58648, Application No. 40479, June 23, 1959.*



Discontinuance of Private Mobile Communication Service Denied by State Commission

THE California commission denied the Pacific Telephone and Telegraph Company's application for permission to discontinue furnishing private mobile communication service on a lease-maintenance basis. The commission found that there is an increasing need for such service, and that the applicant had not shown that the service was being rendered at a loss. In the commission's opinion, the applicant was physically able to perform its dedicated service, and legally able to perform under the terms of the AT&T consent decree and under the rulings of the Federal Communications Commission. A premature abandonment might result in economic loss and burden on other types of service and customers.

The telephone company took the position that its customers for private mobile communication service assumed the full responsibility for obtaining the necessary authorization from the Federal Communications Commission for the operation of

the system. However, the FCC had not licensed any new customers seeking to obtain facilities. The company thought it would not be fair to present customers to hold out hope of a continuing service in the future, because of the consent decree.

The commission held that the company had not shown conclusively that the FCC would not grant or renew licenses to California customers applying for service. Also, the consent decree did not include, within its terms, common carrier communication service, and no court had yet found that service under the schedule filed with the California commission was not a common carrier communication service. If, in the future, the FCC should refuse to grant an application to either an existing or prospective customer, the commission said, the time would then be right for filing an application for discontinuance. *Re Pacific Teleph. & Teleg. Co. Decision No. 58699, Application No. 40934, June 29, 1959.*



Efficiency Level and Wage Increases Figure in Extraordinary Reconsideration Proceeding

TAMPA ELECTRIC COMPANY, in an extraordinary reconsideration proceeding, was authorized by the Florida commission to increase rates again sufficiently to produce \$1,585,000 in additional gross

revenues. The revenue adjustment was allowed as requested by the company, and new rates are expected to afford a rate of return of 6.50 per cent on a year-end rate base. Under the original order, the com-

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mission fixed 6.74 per cent as a reasonable return for Tampa Electric (26 PUR3d 158). However, it determined the revenue requirement to attain this rate of return on the assumption that the company's new Gannon plant—then in operation only a few months—would substantially improve the system's operating efficiency. In the first reconsideration proceeding, the commission found no reason to change this assumption and rejected the company's contention that it could not earn the allowed rate of return under the authorized rates.

In the extraordinary reconsideration proceeding, the company showed that the improved operational efficiency anticipated from the Gannon plant had not materialized, and that it was actually earning only 5.81 per cent. It did not ask for rates sufficient to produce the full 6.74 per cent,

but asked the commission to restore the reduction in the revenue requirement for operational efficiency and also allow wage increases which had been recently granted. These two claims, totaling \$1,585,000, were allowed. The company expects to overcome the continuing deficiency in rate of return through further savings in fuel costs. (See, also, page 381 on tariffs.)

The commission noted that it had previously allowed working capital which took into consideration an income tax payment lag of only 17½ per cent. Further study indicated that 17½ per cent grossly understated the lag. It was found to be 50 per cent of the annual accrual for income taxes and 100 per cent of the annual deferral of income taxes. *Re Tampa Electric Co. Docket No. 5274-EU, Order No. 2695-A, July 7, 1959.*



Customer Must Abide by Extension Agreement

THE Massachusetts commission dismissed a petition by a land development corporation to require a water utility to supply water from an existing main to eight new houses to be constructed by the corporation. Pressure was already inadequate for some existing customers, and it would be imperative to increase capacity before adding more consumers. But the commission felt that the development corporation's problem was of its own making.

In a prior proceeding the corporation by stipulation had agreed to put up an estimated \$21,000 to enable the utility, after borrowing to its legal limit, to construct facilities and extend service to the development for both present and proposed homes. Service would then be adequate, and the utility would reimburse the cor-

poration over a number of years. The agreement was made the subject of a commission order.

In the instant proceeding, however, the corporation announced that it would not be willing to invest more than \$5,000 or \$10,000 and, notwithstanding the agreement and prior order, asked the commission to direct the utility to connect eight new houses to an overburdened main.

The commission observed that this matter had already been resolved in the prior order, after stipulation between the parties. It would not now be proper to pass the development corporation's problem on to the utility, which was at all times willing to abide by the earlier decision. *Re Town Crest Homes, Inc. DPU 12887, July 6, 1959.*

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Other Recent Rulings

FCC Expertise. The U. S. court of appeals refused to say that the Federal Communications Commission had erred in determining that the death of one of two partners possessing a television station construction permit had not altered the basis for the commission's original decision granting the permit, notwithstanding that the commission did not reopen the record to take new evidence on the effect of the partner's death, and the commission had, in granting the permit, given some weight to the fact that the partner who had died would supervise the station's day-to-day operations. *Southland Television Co. v. Federal Communications Commission*, 266 F2d 686.

Joint Advertising Discounts. The U. S. court of appeals held that the FCC had not improperly failed to disapprove joint advertising discounts where discounts allowed for joint advertising on a station seeking renewal of a broadcasting license and its associate station were not per se unreasonable, the service areas of both stations overlapped, and the protestant had not asserted either that the stations made it mandatory for advertisers to advertise on both stations or that its monetary loss resulting from the joint advertising would in any way impair its ability to broadcast in the public interest. *Federal Broadcasting System, Inc. v. Federal Communications Commission*, 266 F2d 922.

Reduced Long-haul Rate. The U. S. district court would not affirm an ICC order authorizing railroads to charge reduced long-haul rates for transportation of sulphur where the commission had failed to make basic findings essential to support its conclusion that the authorized

rates would be reasonably compensatory. *Marine Transport Lines, Inc. et al. v. United States et al.* 173 F Supp 326.

Export Rate Applicable. The U. S. court of claims held that a railroad was not entitled to domestic rates on government shipments destined for export merely because the government had failed to furnish a certificate pursuant to an agreement making the export rate available and requiring the authorized government representative to furnish the carrier with a certificate of export where the carrier knew that the shipments were going into export and they actually went into export. *Union P. R. Co. v. United States*, 172 F Supp 668.

Factors Affecting Discontinuance. The New Jersey superior court decided that the commission, in passing upon a railroad's application for permission to discontinue certain passenger service, must consider the cost of providing the service, use made by the public of the service, and the availability and adequacy of alternate transportation facilities, and that the local factor of public need for services rendered is the predominating and controlling element. *Susquehanna Transit Commuters Asso. v. New Jersey Pub. Utility Comrs.* 151 A2d 9.

Service Boundary Recognized. The Indiana commission ruled that a telephone company rendering, or offering to render, reasonably adequate service in its certified territory should not be deprived of its certificate rights in favor of another company merely because some residents in the area desire service from such other company. *Re Paragon Mut. Teleph. Co.* No. 28138, June 12, 1959.

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Wire Tapping. The New York court of appeals held that the fact that the Federal Communications Act applies equally to intrastate communications does not mean that a state is powerless to protect the privacy of its own citizens by forbidding the tapping of telephones within the state. *People of State of New York v. Broady*, 158 NE2d 817.

Motor Carrier-Union Contract Void. The Ohio court of appeals held that an agreement between a union and a motor carrier fixing the price to be charged for the use and supervision of trucks and trailers owned by individuals who leased the equipment to the carrier was void and unenforceable as against public policy reflected in statutes prohibiting monopolies and restraints of trade. *Oliver etc. v. All-States Freight, Inc. et al.* 156 NE2d 190.

Rival Telephone Applications. In determining two rival applications by telephone companies for authority to serve uncertificated adjacent territory, the Indiana commission was guided by the community of interest of the territory which could best be served by one company, by the nearness of such company's toll center to its exchange and to the territory, and by the substantially lower rate proposed by the same company. *Re Southeastern Indiana Rural Teleph. Co-op., Inc.* Nos. 27873, 27874, June 5, 1959.

Certificate for Electric Transmission Line. The Illinois commission granted an electric company a certificate to construct, operate, and maintain a transmission system where it had been shown that the route was practical and feasible, the most direct and economical, and reasonably

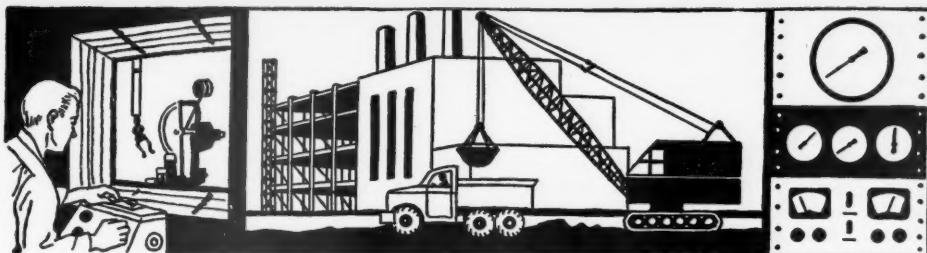
planned to provide sufficient transmission capacity to meet anticipated load demands in the area, and the company, by the date of the hearing, had acquired 61.3 per cent of the total length of the right of way required and 60 per cent of the total number of parcels of land along the route. *Re Commonwealth Edison Co.* No. 45832, July 9, 1959.

Municipal Plant Water Rate Base. The Wisconsin commission held that the net book value of municipal water plant, less contributions in aid of construction, plus materials and supplies, and an amount for working capital, constitutes a reasonable and proper rate base. *Re City of Prescott*, 2-U-5189, June 30, 1959.

Electric Company Return. The Wisconsin commission considered a return of 6.2 per cent on an electric company's book value rate base reasonable. *Re North Central Power Co., Inc.* 2-U-5132, July 3, 1959.

Two-step Rate Increase. The Wisconsin commission granted a telephone company a two-step rate increase which would provide a return of 6.48 per cent on the net-investment-cost rate base initially and a return of 6.52 per cent after conversion to dial operation. *Re Hillsboro Teleph. Co.* 2-U-5166, July 3, 1959.

Statutory Violation as Bar. The Colorado commission commented that the fact that an applicant for a motor common carrier certificate has technically violated a statute is not always an absolute bar to the granting of a certificate. *Re Watson, Inc. Application No. 17008, Decision No. 52630*, July 6, 1959.



Industrial Progress

Natural Gas Industry Planning Further Extension of Service

THE natural gas industry now is laying plans for extending service to approximately a million more families each year over the next decade.

The Gas Appliance Manufacturers Association, in its annual edition of "Natural Gas Construction Data," reports that the 31,792,000 utility customers receiving gas service as of January 1, 1959 are expected to grow to 43,700,000 by 1970.

During 1958 alone the Federal Power Commission authorized pipeline and compressor construction projects proposed by pipeline and utility companies totaling \$622,306,000. These will supply new or additional service to homes in 139 cities and hundreds of smaller communities throughout the U. S. At year's end the FPC also had on file additional applications awaiting disposition in the amount of \$1,537,949,000.

The FPC authorized major projects totaling another \$208,397,000 and also received new applications for major projects aggregating \$291,175,000 during the first four months of 1959. The GAMA study describes each of the major construction projects approved by the FPC in the 16-month period, as well as those now pending disposition.

The survey points out that as of January 1, 1959 approximately 60 per cent of the pipelines and 62 per cent of the compressors authorized in 1958 had been completed and placed in operation. During the first four months of this year, major projects totaling an additional \$6,159,000 were completed.

GAMA reports that at the beginning of 1959 the industry's pipeline system extended 571,500 miles, equal to circling the earth 22 times. Of this total, 165,360 miles are used for transmission (from gas fields to utilities), 54,130 for distribution (from utili-

ties to domestic, commercial and industrial customers) and the remaining 52,010 as field and gathering lines.

If all the projects awaiting disposition on January 1 are approved by the FPC, they will add 11,419 miles of pipeline and compressors aggregating 962,894 horsepower to the existing facilities. By 1960, it is believed, the nationwide pipeline network will total 601,300 miles and by 1970 it will reach 858,300 miles.

This construction, GAMA managing director Harold Massey explains, is part of a huge industry-wide expansion program which has been made necessary by the trend to multiple use of gas in the home—for cooking, water heating, house heating, air conditioning, clothes drying, refrigeration and incineration.

In the past seven years the gas industry's pipeline and plant investment has doubled, growing to an estimated \$21 billion as of the start of 1959, and new construction is expected to continue at the rate of nearly \$2 billion annually for the next five years. The combined production, storage, transmission, distribution and utilization of gas now is judged to be the fifth largest industry in the U. S., the report states.

The survey lists the cities of 50,000 or more population scheduled to receive new or additional gas supplies as a result of the 1958 authorizations, the names and addresses of the pipeline and utility companies constructing the projects and details on the mileage, cost, pipe sizes, estimated steel pipe tonnage, compressor horsepower, FPC docket number and purpose of each project. It also contains information on natural gas reserves, production and future construction forecasts.

Copies of "Natural Gas Construction Data" are available at \$3.00 per copy from the Marketing and Statistical Department, Gas Appliance Man-

ufacturers Association, 60 East 42nd Street, New York 17, N. Y.

Hiller Aircraft Issues Booklet on Line Patrol

LINE patrol, construction and right-of-way maintenance by helicopter are among the topics covered by a booklet recently released by Hiller Aircraft Corporation.

Photographs of Hiller 12 E helicopters at work in the field, brief performance specifications and information on charter operator services are also presented.

Copies of "New Workhorse for Utilities" may be obtained by writing Commercial Division, Hiller Aircraft Corp., 1350 Willow Rd., Palo Alto, California.

Compact Network Transformers Added to I-T-E Product Line

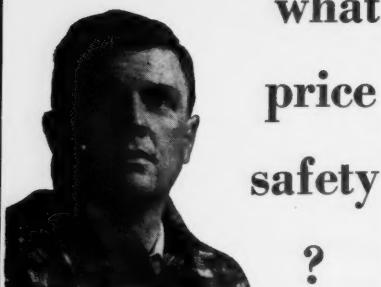
A COMPLETE line of network transformers—compact, submersible units for supplying heavily loaded urban areas—has been introduced by I-T-E Circuit Breaker Company, Philadelphia.

The new line introduction follows a recent change in marketing policy that made I-T-E transformers available for sale as independent units for the first time. I-T-E's Transformer and Rectifier Division has sold transformers since 1948—but, until recently, solely for use with I-T-E rectifiers and unit substations.

The network transformers are available in seven ratings from 300 through 2500 kva for primary voltages of 4160/2400 through 23,000 volts.

According to the announcement, I-T-E network transformers are especially designed to meet the unusual operating conditions on power networks or grids—interlaced distribution arrangements that permit power

(Continued on page 20)



Bud Harper
Pole Inspector

I am not in the sales end of our business, but I do know a type of customer demand we hate to see.

This is where a pole owner has been letting nature take its course until a lineman's hooks cut out of decayed sapwood and he ends up in the hospital.

When this happens once or twice, people in the company start thinking about our service that keeps older poles safe.

We much prefer to avoid unnecessary risk of life by getting to the poles with our proven in-place treatment *before* the accidents do. If you would like to know more about our inspecting and treating service, drop me a line.

Bud Harper



what price safety?

INDUSTRIAL PROGRESS—(Continued)

to be taken off at any spot in the network.

In addition to the new line of network units, I-T-E now designs and manufactures complete lines of rectifier, primary and secondary unit substation and outdoor substation transformers.

New Computer Typewriter

ADDED convenience in computer operation has been made available through the introduction of a fully alphanumeric typewriter for the Bendix Computer Division's medium-scale G-15 digital computer, according to a recent announcement. Data entering and leaving the computer via the typewriter can now be identified with alphabetic information and a variety of special symbols. Headings for columnar typeout, as well as complete format control, can be programmed.

All information is typed into the computer in the normal typing manner. Upper and lower case letters, numbers and special symbols are entered and typed out directly, without the necessity for manual encoding of alphabetic data, conversion subroutines or programmed carriage shifts.

For further information on the G-15 and its new alphanumeric typewriter, write to Bendix Computer Division, 5630 Arbor Vitae Street, Los Angeles 45, California.

\$14,000,000 Unit Placed in Operation by Kentucky Utilities

A NEW 100,000-kilowatt generating unit at Kentucky Utilities Company's Green River power station near Central City has been placed in commercial operation. It will raise the plant's capacity to 255,000 kilowatts.

The new unit—fourth installed at the plant—cost about \$14,000,000 with its auxiliary equipment. It is part of the company's continuing construction and expansion program, said W. A. Duncan, K. U. vice-president.

Because of its size and location in the heart of the Western Kentucky coal fields, the unit is expected to have the lowest production cost of any unit in the company's generating system.

Con. Ed. of N. Y. Awards Contracts for Indian Point Nuclear Plant

THE General Electric Atomic Power Equipment Department (APED) has been selected to design and manufacture the equipment for the nuclear instrumentation and safety systems

for Consolidated Edison Company Indian Point Nuclear Power Station APED General Manager, George White, announced recently.

Final negotiations for the equipment are being conducted with the Bailey Meter Company which is supplying the major portion of the plant instrumentation and control equipment. In addition to handling the general engineering, Consolidated Edison is constructing the plant and will operate the completed station.

Babcock and Wilcox has the contract for nuclear design and research and will furnish major items of nuclear equipment, including the core. Vitro Engineering is a nuclear consultant and furnishes design drafting services.

The nuclear instrumentation system will include "solid state" safety equipment which employs transistors. The equipment provides for automatic insertion of the control rods—or reactor regulating devices—if the neutron monitoring instruments indicate the power level in the reactor exceeds permissible limits.

The system will use 10 channels of neutron monitoring instruments, including start-up channels, intermediate range channels, log-N period channels, and power level flux monitoring channels. Each channel will furnish safety information to a network which can "scram," or completely shut down the reactor.

The instrumentation system also will include flux flow monitoring equipment which will establish safe operating limits based on water flow.

APED also is providing the nuclear control rod drive mechanisms—or reactor regulating devices—for the Indian Point Nuclear Power Station.

Completion of the station is scheduled for early 1961.

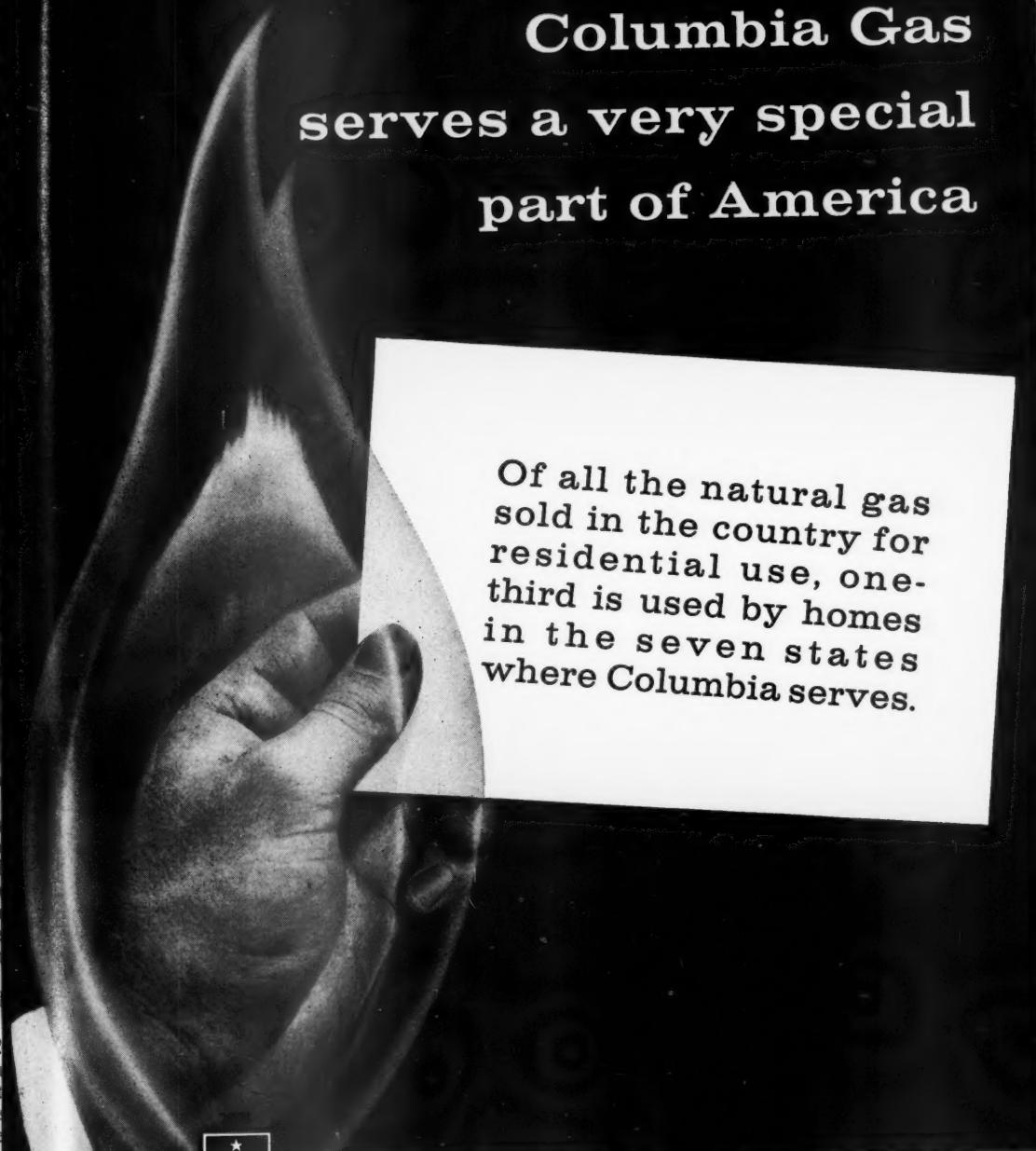
The Indian Point Plant, located 25 miles from New York City on the Hudson River, will have an ultimate electrical capacity of 275 megawatts, 163 megawatts from its nuclear reactor, and 112 megawatts from two oil-fired superheaters.

CLECO Reports \$50,000,000 Construction Program Well Underway

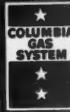
MANY phases of a five-year \$50,000,000 construction program for Central Louisiana Electric Company Inc. (Pineville, La.) are nearing completion in the second half of 1959, according to an announcement by P. Hugh Coughlin, president and Pa-

(Continued on page 22)

Columbia Gas serves a very special part of America



Of all the natural gas sold in the country for residential use, one-third is used by homes in the seven states where Columbia serves.



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INDUSTRIAL PROGRESS—(Continued)

E. Randol, vice president in charge of engineering construction.

The projects which will cost almost \$9,000,000 in 1959 and approximately \$14,000,000 in 1960 include the following:

1. Sixth generating unit, which will more than double capacity of Coughlin power station at St. Landry, under construction and scheduled for completion in 1961. New unit will have generating capacity of more than 116,000 kilowatts, more than doubling power plant's present capacity of 100,000 kilowatts. Cost: \$600,000. Construction increasing Coughlin power plant's capacity has constantly been underway since 1954.

2. Scheduled for completion in September is a modernistic executive office building in Pineville, La.

3. Ground leveling has already started for a service center and office, warehouse, crew building and garage. They are scheduled for completion in December, 1960.

4. The Pineville business office will be operating in a modernistic, renovated business office, complete with drive-in facilities and ample parking space, in December.

5. A \$1,500,000 planning, engineering and right-of-way acquisition program is now underway for a four-to-four (44) mile 138,000 volt transmission interconnection system line from Mansfield to Leesville.

G-E Reports Increase in Orders for Large Steam Turbine Generators

A PROGRESSIVE improvement in the placement of orders for large capacity steam turbine-generator units by the nation's electric utilities was noted recently by W. S. Ginn, General Electric Vice President and General Manager of the Company's Turbine Division.

In a statement to the employees of General Electric's Schenectady plant and to the community, Mr. Ginn reported that in the first seven months of this year the Large Steam Turbine-Generator Department had received contracts for units with a total capacity of 2,000,000 kilowatts.

He compared this total to last year when "all companies which manufacture such machines received orders for less than two million kilowatts making 1959 one of the worst order years in recent history."

The steam turbine-generator industry since the end of World War II has noted definite five year cycles of ordering by the electric utilities with two or three years of heavy ordering, and a sparse number of contracts in the other years.

"The steam turbine-generator order outlook for 1960 is even better," Mr. Ginn said. "We expect 1960 to be an excellent year for orders, resulting in higher employment levels in 1961 and 1962."

Mr. Ginn pointed to two items in the nation's economic barometer as signs of encouragement. They are

1. Electrical energy consumption which this year is running 10.7 per cent ahead of last year, with the week in 1959 showing an improvement over the comparable week in 1958.

2. Electric power consumption reaching an all-time high of 13.7 billion kilowatts in the week ending August 1, with the record possibly being higher except for the current steel strike.

(continued)
Engineering

SoundScriber Issues Brochure

EW brochure describing its 24-continuous tape recorder-reproducer has been made available by The SoundScriber Corporation. The attractive eight-page booklet illustrates "Monitor's" operational features, capacity of recording power, cost, and indicates the great variety of users.

The brochure may be obtained by writing to: The SoundScriber Corporation, 6 Middletown Avenue, Pineville, Connecticut.

Calavar Introduces New Pole Aligner

EW power operated pole aligner, designed to handle any size pole, was announced recently by the Calavar Corporation, 2700 S. Broadway, Los Angeles 7, California.

The Hydra-Pike consists of two lever-type arms mounted on a platform at the derrick head. The arms or pincers are hydraulically operated. Hydraulic line fitting system is available for telescopic booms. The complete system can be mounted on most derricks, poles, booms, and diggers used throughout the utility industry. The recent tip controls can be mounted on the derrick head.

Division for complete specifications and operating information, write to the company, Mr. Gavar Corporation, 2700 S. Broadway, Los Angeles 7, California.

Trunkline Gas Has \$82,000,000 Program Underway

ENHANDLE Eastern Pipe Line Company announces that its subsidiary, Trunkline Gas Company of Houston, Texas, has a \$82,000,000 construction program under way. The facilities are expected to be in operation during the coming winter or three years from now unless deliveries of steel pipe are delayed because of a prolonged strike.

The expansion program will increase Trunkline's pipeline capacity from 375,000 MCF per day to 510,000 MCF per day. The bulk of the increased supply will be sold by Trunkline to Consumers Power Company of Michigan.

R Issues Catalog on Visible Controls for Machine Systems

BLICATION of a colorful new page manual entitled "Visible Controls for Machine Systems" has just

INDUSTRIAL PROGRESS—(Continued)

been announced by Remington Rand Division of Sperry Rand Corporation.

Concise written and profusely illustrated, this manual explains just how visible recordkeeping systems and housing equipment facilitate sound management decisions, and at the same time get the work done faster by expediting machine operations.

A copy of this manual can be obtained at any Remington Rand branch office, or by writing to the company at 315 Fourth Avenue, New York 10, N. Y. and requesting KD 854.

New Lead Acid Battery Handbook Available From Gould

INDUSTRIAL storage battery users and maintenance men in all phases of industry will be interested in a new 36-page handbook of technical instructions and engineering data on the care of motive power storage batteries.

Prepared by the Industrial Division of Gould-National Batteries, Inc., Trenton, N. J., the illustrated booklet, "Instructions and Maintenance Data" (GB-1896) covers all phases of battery theory, operation and maintenance.

Copies of Bulletin GB-1896 may be obtained from: Gould-National Batteries, Inc., Trenton 7, New Jersey.

Standard Wire & Cable Issues Glossary of Wire and Cable Terms

STANDARD Wire and Cable Company announced recently the publication of a pocket sized "Glossary of Wire and Cable Terms."

The booklet, a 4 x 6 pocket sized publication, lists alphabetically common terms, expressions, and units used in the electrical wire and cable industry. It is indispensable as a reference to engineers, designers, technicians and purchasing personnel.

Available at no cost on letterhead requests to 3440 Overland Avenue, Los Angeles 34, California.

Reading Body Works Introduces New Telephone Utility Truck Body

A NEW "job-planned" telephone utility truck body, with removable and adjustable shelves, has been manufactured by Reading Body

Works, Inc., of Reading, Pa., for the Mountain States Telephone and Telegraph Company, of Phoenix, Ariz. The vehicle is used for telephone installation work.

Removable shelves, which provide storage for tools and materials, give the truck operator the option of changing the interior compartments arrangement to meet daily work requirements. The shelves, mounted on special die-formed steel brackets, can be removed or inserted without tools.

The Western Truck Equipment Company, also of Phoenix, which adapted the Reading body for the Bell System division, supplied 30 extra shelf dividers. They fit into three-dimensional slots to permit optional spacing of storage bins for small parts, supplies and tools. The dividers slip into slots on one-inch centers without the need of tools.

Special overhead angled ladder racks were installed on each side of the body, which is mounted on a standard Ford chassis.

Double-paneled doors keep supplies in the compartments waterproof. All doors are equipped with slam-action locks.

The body, fabricated from heavy gauge cold rolled steel, has all the standard Reading construction features, including complete unitized electric welding, safety-tred flooring and undercoating.

A-C Releases New Bulletin on Power Factor Capacitors

CONSTRUCTION features of Allis-Chalmers substation and pole-mounted power factor capacitors are described in a new bulletin released by the company.

Available in ratings of 25 and 50 kvar in 2400 through 7960 volts, Allis-Chalmers capacitors meet all national standards for size, voltage, range and dimension. They are factory assembled for single-row or multi-row configuration or for stacking racks to users' requirements.

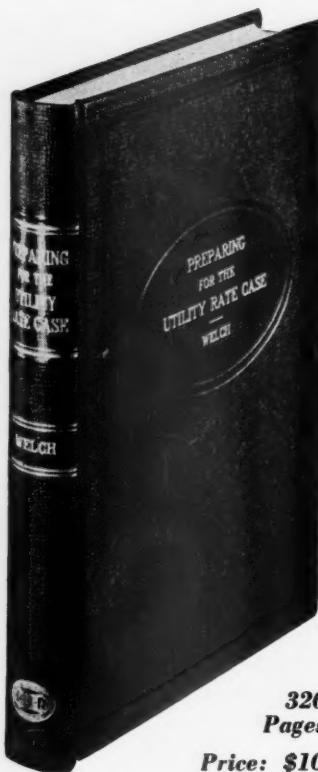
The bulletin shows how Allis-Chalmers quality control is applied throughout the production of its capacitors. It includes a cutaway view to show the capacitor's design advantages.

Copies of "Allis-Chalmers Power Factor Capacitors," bulletin 32B9421, are available on request from Allis-Chalmers, Milwaukee 1, Wisconsin.

PREPARING FOR THE UTILITY RATE CASE

by Francis X. Welch, B. Litt., LL. B., LL. M.

The satisfactory solution of the most expensive and difficult problem of Commission Regulation—The Rate Case—depends very largely upon how well and how thoroughly the details of *preparation* have been given attention. "Preparing for the Utility Rate Case" is a compilation of experiences taken from the records of actual rate cases. It has required two years of research, study and analysis, conducted by Francis X. Welch, Editor of PUBLIC UTILITIES FORTNIGHTLY, with the aid and cooperation of selected experts, to complete this treatise.



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The volume, being the first of its kind, should be found invaluable to *utility executives, rate case personnel, attorneys, accountants, consultants, regulatory commissions, rate case protestants*, and, in fact, to all persons engaged in or having an interest in rate cases.

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| Selection and Function of the Attorney | Annual Depreciation |
| The Mechanics of Rate Case Preparation | The Rate of Return |
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by Francis X. Welch, B. Litt., LL.B., LL. M.

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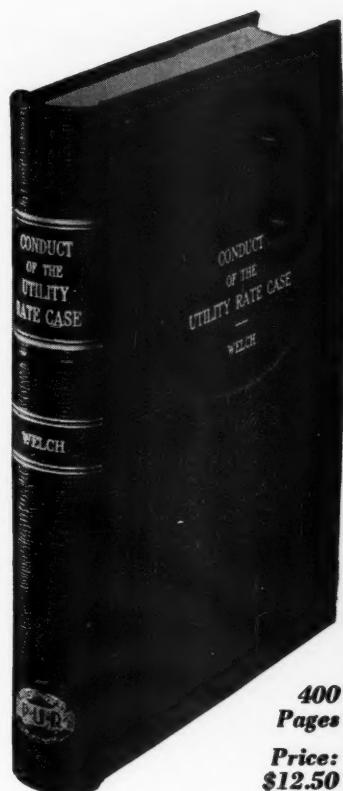
- filing the application
- introducing the evidence
- examining the witnesses, etc.

In fact, it explains the *time-saving and effective ways* of making the *step-by-step progress toward the rate decision*, including information concerning the requirements for *appeal and review*.

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- Negotiations Before Hearing—Prehearing Proceedings
- Setting and Opening The Hearing
- Examination In Chief
- Cross-Examination and Rebuttal
- Evidence in a Rate Case
- The Case for Complainants
or Rate Increase Protestants
- The Expert Witness
- Motions, Interlocutory Procedures, Arguments, Briefs
and Decisions
- Appeal and Review



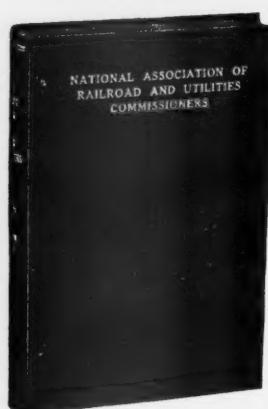
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"Conduct of the Utility Rate Case," like its companion, is designed not only to aid both *rate-case practitioners and regulatory authorities*, but *everyone who has responsibilities or duties in connection with a rate case*.

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NOTE: 1958 Revised Uniform System of Accounts for Electric and Gas Utilities are in the process of being printed and will be available about May 1, 1959.

1958—Regulations Governing the Preservation of Records of Electric, Gas and Water Utilities

Local Service Telephone Rates (Revised 1957)

An excellent compilation of rates prepared by NARUC Subcommittee on "exchange rates" for all exchanges of Bell System, the rates of cities of 50,000 population or more for Bell and Independent exchanges, and tabulation of above exchanges which had ten cent coin telephone rate in effect June 30, 1957

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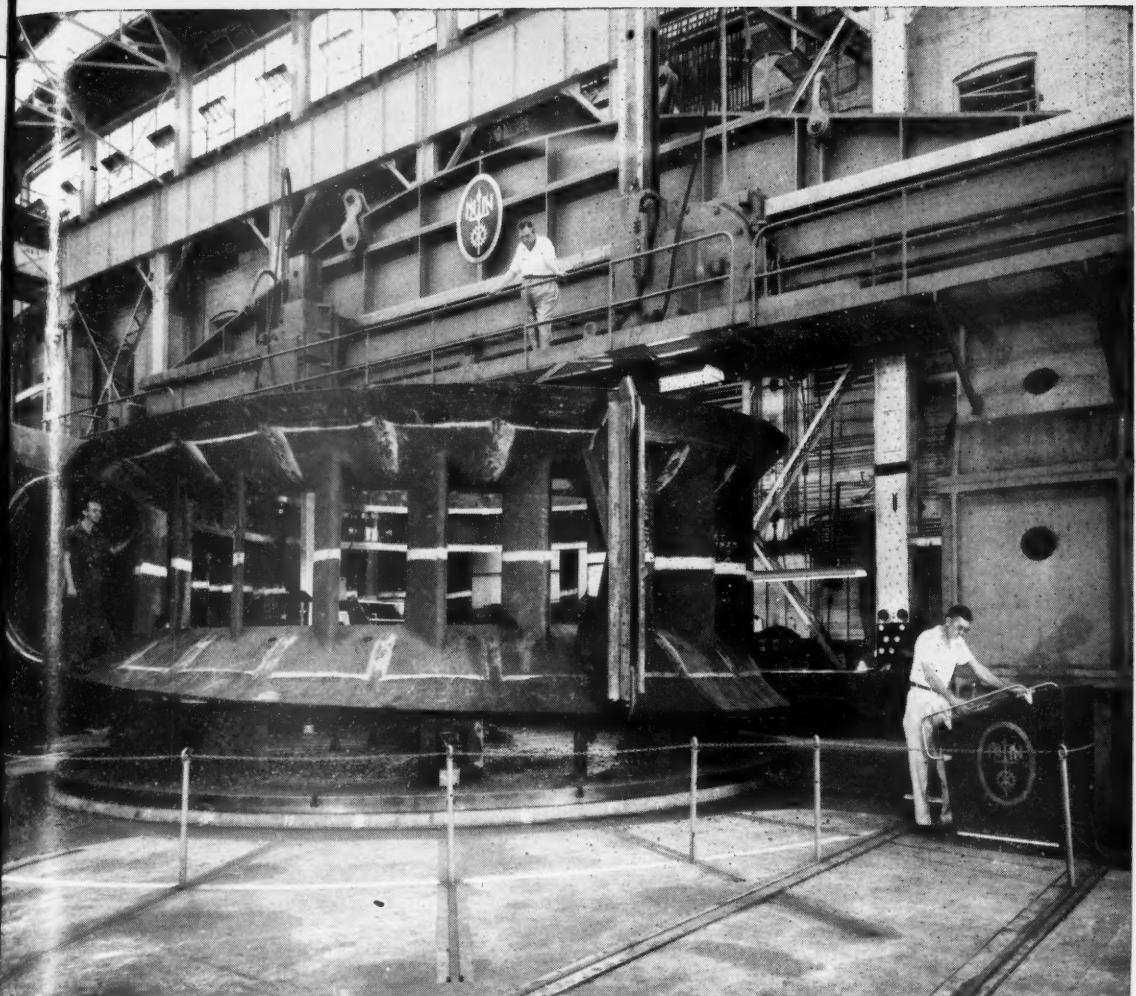
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